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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

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Vol. 28 No. 1

January 10, 1936
Personnel (Dec. 11 - Jan. 10) and Field Station (Dec. 1 - 31)

PERSONNEL ITEMS

Dr. C. S. Holton arrived in Washington on January 6 to work with Dr. H. A. Rodenhiser in the preparation of reports and manuscripts. They will also plan joint future experiments during the month of Dr. Holton's stay. Enroute from Pullman, Wash., to Washington, D. C., Dr. Holton stopped at St. Louis, Mo., during Christmas week to attend the meetings of the American Association for the Advancement of Science. He also took annual leave to visit his former home in Louisiana.

Dr. Richard S. Rosenfels, formerly in the Soil Conservation Service at New Brunswick, N. J., has been transferred to this Division to be assistant physiologist in the Investigations of Noxious Weeds at Davis, Calif. Enroute he will stop in Washington, D. C., to confer with officials on the weed research program. He will also stop in Chicago, Ill., for consultation with research workers at the University of Illinois.

Dr. J. D. Sayre and Dr. V. H. Morris came to Washington in the middle of December to set up experiments at the Arlington Experiment Farm for the study of mineral nutrition of corn inbreds and hybrids in solution cultures. This experiment at the Arlington farm is a duplicate of one that Drs. Sayre and Morris are conducting at Wooster, Ohio. The reason for the duplication is that they have more adequate facilities at Arlington farm.

Mr. Glenn M. Smith has been authorized to attend the meetings of the National Canners Association to be held in Chicago, January 20 to 25. He will present information on maintaining inbred lines of sweet corn under commercial conditions.

RECENT PUBLICATIONS

A Study of the Cause of Variability in Response of Barley Loose Smut to Control through Seed Treatment with Surface Disinfectants. V. F. Tapke. Jour. Agr. Research 51(6): 491-508, pl. 1, fig. 1. September 15, 1935. (G-976) (Received Jan. 10, 1936)

Oat Varietal Tests in Utah. R. W. Woodward and D. C. Tingey. Utah Agr. Expt. Sta. Bull. 260, 14 pp., 1 fig. November 1935. (Cooperative investigations of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Barley Varietal Tests in Utah. R. W. Woodward and D. C. Tingey. Utah Agr. Expt. Sta. Bull. 261, 12 pp., 1 fig. November 1935. (Cooperative investigations of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Comparative Yields of Spring Wheat Varieties in Utah. D. C. Tingey and R. W. Woodward. Utah Agr. Expt. Sta. Bull. 262, 12 pp., 1 fig. November 1935. (Cooperative investigations of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Relative Production of Feed Grain from Spring-Grown Cereals in Utah. R. W. Woodward and D. C. Tingey. Utah Agr. Expt. Sta. Bull. 263, 12 pp., 1 fig. November 1935. (Cooperative investigations of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Relief Wheat. D. C. Tingey and R. W. Woodward. Utah Agr. Expt. Sta. Bull. 264, 12 pp. November 1935. (Cooperative investigations of the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

The Determination of Moisture in Barley Malt. A Comparison of Methods and Apparatus for This Purpose. D. A. Coleman and S. R. Snider. Cereal Chem. 12(6): 621-645, 4 figs. November 1935. (Cooperative investigations between the Grain Division, Bureau of Agricultural Economics, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

The Effect of Light Intensity and Temperature on Infection of Hope Wheat by Puccinia graminis tritici. Helen Hart and Karol Zaleski. Phytopathology 25 (12): 1041-1066, figs. 1-6. December 1935. (This work was started as a cooperative project of the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

Studies on Seven Differentiating Characteristics of Two Physiologic Forms of Tilletia tritici. C. S. Holton. Phytopathology 25(12): 1091-1098, figs. 1-3. December 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Washington, Oregon, and Idaho agricultural experiment stations.)

Some Factors Affecting Infection with and Spread of Diplodia zeae in the Host Tissue. J. R. Holbert, P. E. Hoppe, and A. L. Smith. (Phytopathological Note) Phytopathology 25(12): 1113-1114, fig. 1. December 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Illinois and Wisconsin agricultural experiment stations.)

Registration of Varieties and Strains of Oats, VII. T. R. Stanton. Jour. Amer. Soc. Agron. 27(12): 1001-1002. December 1935.

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N O T I C E

Attention is called to the fact that allottments for the present fiscal year included funds to cover the cost of typing annual reports in the field.

H. S. Smith
Junior Administrative Assistant

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C.

October 30, 1935.

MEMORANDUM NO. 680.

Amendment to the Administrative Regulations of the Department Regarding Appearance, Fees, and Expenses of Department Employees as Witnesses in Judicial Proceedings.

Paragraph 688 of the Administrative Regulations of the Department is hereby amended to read as follows:

688. Appearance, Fees, and Expenses of Department Employees as Witnesses in Judicial proceedings. - The cases involving appearance will be treated in the following groups:

(a) Employees testifying in cases arising within the department or growing out of the violation of laws of a state or subdivision thereof in the enforcement of which employees of the department have been authorized to assist, including laws with respect to migratory birds, livestock, the protection of fish and game, and the prevention and extinguishment of forest fires.

(b) Employees testifying for the United States in cases not arising within the department.

(c) Cases between private parties or by some party other than the Federal Government where the employee is called upon solely because of and to testify in his official capacity or to produce official records or information.

(d) Cases between private parties where the employee's testimony has no official character, or cases in which a state is a party not covered by (a) above.

Appearance.-

In cases (a) and (b), may be without subpoena.

In case (c), there must be no appearance without subpoena.

In case (d), the department is not interested in the manner of appearance.

In case (c), the employee subpoenaed should notify the chief of bureau by letter or telegram, stating the names of the parties litigant, the matter in suit, and the nature of the testimony the employee expects to give. Where in case (c) the chief of bureau deems the production of records or the employee's proposed testimony prejudicial to the public interest, he should at once refer the case to the Solicitor of the department who will promptly advise whether the employee may be compelled to appear and testify. The term "chief of bureau" throughout this regulation will be construed to include regional foresters.

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Witness Fees and Expenses of Travel and Subsistence

The terms "fees" and "expenses" are distinct. The first means the amount allowed as pay for attendance; the second, the amount allowed to cover travel and subsistence.

In case (a) no fees are allowable. Expenses of travel and subsistence should be paid from the department appropriations as in case of official tr[illegible]l unless a different arrangement has been made between the cooperating states and the department.

In case (b) no fees are allowable. The expense account, prepared on a special form furnished by the United States marshal, should be presented to the United States marshal for payment.

In case (c) fees and expenses should be accepted but all amounts so collected over and above the amount of actual and necessary expenses, a statement of which must be furnished the chief of bureau, must be turned into the Treasury as miscellaneous receipts.

In case (d) the department is not concerned with fees or expenses. No account need be rendered.

Leave.-

In cases (a), (b), and (c) no leave need be taken. The employee is regarded as on official duty.

In case (d), leave with pay, or if such leave has been exhausted, leave without pay, must be taken.

H. A. WALLACE
Secretary.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF BUDGET AND FINANCE
WASHINGTON, D. C.

October 31, 1935

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

For your information and guidance, there is quoted below excerpt from a decision rendered by the Comptroller General of the United States, on September 20, 1935 (A-62421) on the subject of signing official documents in pencil:

> "In addition to the dangers involved, there is a very practical objection to lead pencil signing of official documents, in that in the handling thereof, incident to examining, paying, sorting, and filing, the signatures and data may become so indistinct as to be illegible. Lead pencil signatures should not be accepted except in those rare cases where it is impossible to secure the required signature by pen and ink."

It will be appreciated if employees who contact vendors, or other creditors of the United States, will apprise them of the requirements of the above mentioned decision, in order that the vouchers may be in proper form when presented to the Disbursing Officers for payment. The Division of Disbursement, Treasury Department, has refused to make payment in instances where the claimant has signed in pencil.

A statement indicating the reason for signing vouchers with pencil should accompany vouchers where it is impossible to secure the required signature by pen and ink.

W. A. Jump
Director of Finance

DIGEST OF COMPTROLLER'S DECISIONS

Nos. A-27784, A-44002

OFFICERS AND EMPLOYEES--WITNESSES--FEES AND EXPENSES

Government employees subpoenaed to testify as witnesses for the Government are limited by section 850, Revised Statutes, to reimbursement of necessary expenses, but when subpoenaed to testify as witnesses other than for the Federal Government, not in their official capacity, they are entitled to the usual fees and expenses--time absent by reason thereof to be charged as annual leave or leave without pay. Where the value of their testimony in private litigation arises from their official capacity, they may be regarded as in a duty and pay status during the period of their necessary absence and in such cases they should collect the authorized witness fees and allowances for expenses of travel and subsistence, the amount thereof in excess of the amount of their actual expenses to be accounted for and deposited in the Treasury as miscellaneous receipts.

No. A-63482

CONTRACTS--AWARDS--BIDS, F. O. B. BIDDER'S SHIPPING POINT AND F. O. B. GOVERNMENT DESTINATION

Where advertised specifications notified prospective bidders that bids were to be submitted f. o. b. bidder's shipping point and f. o. b. Government destination, with the right reserved in the Government to accept either bid and the further right that the Government could require shipments to be made by Government bills of lading, award may be made on the basis of f. o. b. Government destination, with shipments to be made on Government bills of lading, and the deduction from the bid price, because of the manner of shipment, is for determination on the basis of the commercial cost of transportation from bidder's shipping point to Government destination.

No. A-64532

TRAVELING EXPENSES--MINIMUM FIRST CLASS FARES--USE OF OWN AUTOMOBILE ON MILEAGE BASIS--STEAMSHIP FREIGHT CHARGES

Employees performing official travel may not be reimbursed for cash payments made in excess of minimum first class steamship fares notwithstanding it is alleged the minimum first class accommodations were used by orientals only.

Employees authorized to use their personally owned automobiles on a mileage basis for official travel, are not entitled to reimbursement for freight charges for transportation of their automobiles for that portion of the travel performed by boat, the mileage allowance being in lieu of all transportation expenses.

No. A-66038

TRANSPORTATION--GOVERNMENT EMPLOYEES--USE OF AIRPLANES

The use of airplanes for official transportation, in cases other than emergency or exigency from the Government standpoint, is authorized only when the cost thereof to the Government does not exceed the cost by rail, plus Pullman, where the travel is such that Pullman charges would have been authorized.

No. A-66231

CONTRACTS--ELECTRIC CURRENT--MODIFICATION IN THE GOVERNMENT'S INTEREST

There is no legal object to modification of a contract for furnishing electric

current to the Government by the substitution of rates to be charged thereunder, if the application of the substituted rates results in a saving to the Government of any considerable amount.

No. A-66240

CONTRACTS--LIQUIDATED DAMAGES--UNEXPECTED DELAYS IN OBTAINING NECESSARY MATERIALS

The unexpected delay occasioned by the inability of a contractor to obtain materials for performance of the contract within the time fixed for completion, due to strikes in the plants of the manufacturers furnishing the materials, is not a delay "due to unforeseeable causes beyond the control and without the fault or negligence of the contractor, including * * * strikes", as provided by the contract, excusing nonperformance, and liquidated damages are chargeable to the contractor for such delay in completion.

No. A-62259

TRAVELING EXPENSES--USE OF OWN AUTOMOBILE--MILEAGE

A Government employee authorized to use his personally owned automobile in the performance of official business at a fixed mileage rate, if not in excess of cost by common carrier, is not entitled to reimbursement at the full fixed rate if in excess of the cost of one person by common carrier, notwithstanding he was accompanied by another Government employee and the amount claimed at the fixed mileage rate is less than the cost of two persons by common carrier.

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AMERICAN SOCIETY OF AGRONOMY

Officers 1935-36

President: Mr. R. M. Salter, Agricultural Experiment Station, Wooster, Ohio.

Vice-President: Mr. F. D. Richey, Chief, Bureau of Plant Industry, U. S. Dept. of Agriculture, Washington, D. C.

Chairman, Crops Division: Dr. H. B. Sprague, Agronomist, Agricultural Experiment Station, New Brunswick, N. J.

Dr. O. S. Aamodt, Agronomist, University of Wisconsin, Madison, Wis.

Dr. A. M. Brunson, Agronomist, Kansas Agricultural Experiment Station, Manhattan, Kans.

Chairman, Soils Division: Dr. W. A. Albrecht, Professor of Soils, University of Missouri, Columbia, Mo.

Secretary-Treasurer: Dr. P. E. Brown, Iowa State College, Ames, Iowa.

Editor: Mr. J. D. Luckett, New York Agricultural Experiment Station, Geneva, N.Y.

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The following were elected Fellows of the American Society of Agronomy at the meetings held in Chicago, Ill., December 1935:

Prof. A. C. Arny, Associate Professor of Agronomy and Associate Agronomist, College of Agriculture, University of Minnesota, St. Paul, Minn.

Dr. Richard Bradfield, Associate in Agronomy. Ohio Agriculture Experiment Station, Columbus, Ohio.

Dr. C. E. Millar, Head of Department of Soils, Michigan State College, East Lansing, Mich.

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The following papers, prepared by members of the staff of the Division of Cereal Crops and Diseases, were read at the meetings of the American Society of Agronomy held at Chicago, Ill., December 5 and 6, 1935:

A Study of the Association of Certain Characters in Durum Wheat Crosses, by E. R. Ausemus.

Plans for Distribution of Hybrid Seed Corn in Kansas, by A. M. Brunson.

Methods of Measuring Comparative Amounts of Ear Rot in Dent Corn, by P. E. Hoppe and J. R. Holbert.

The Policies of the Purdue Agricultural Experiment Station Governing the Distribution of Inbred Lines and Single Crosses, by R. R. St. John.

Accumulation of Mineral Elements in Hybrid Corn, by J. D. Sayre and V. H. Morris.

Plans for the Production and Distribution of Hybrid Seed Corn in Missouri, by G. F. Sprague.

Problems and Policies in the Release and Distribution of Corn Hybrids in Ohio, by G. H. Stringfield.

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Jan.4)

The weather in December was the coldest for this month since 1917. Ice formed on 7 days.

A precipitation of 7.14 inches was recorded on 8 days. This is 1.05 inches greater than the 25-year average. The total annual precipitation for 1935 was 55.26 inches, which is 1.32 inches less than the 25-year average.

Work on the station included levee construction, plowing, threshing of nursery and row plots, and the re-cleaning of seed rice.

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) [Jan.4]

The yields in the rice nursery were distinctly low in 1935, being only one-half to two-thirds as much as in 1934. The nursery was seeded in mid-April, a date which, according to the date-of-seeding experiment, is less favorable than earlier or later dates. Yields in bushels of some of the better known varieties and outstanding selections are listed below. The word groups' refers to relative time of maturity, Group 1 being earliest and Group 6 latest. Yields were obtained on 113 varieties and selections.

Group 1: Average of entire group	13.2	Group 4: Average of entire group	18.8
Caloro X Honduras	21.5	Fortuna	26.0
Colusa X Delitus	20.7	Honduras X Blue Rose	23.4
Early Prolific	11.0	Shoemed	22.8
Edith	8.3		
Group 2: Average of entire group	14.4	Group 5: Average of entire group	21.9
Early Prolific Selection (Ark.)	24.8	1/ Kameki X Blue Rose	28.6
Shoemed	23.9	Fortuna	27.3
Edith X Fortuna	18.8	Blue Rose	24.2
Early Prolific	11.5	Rexoro	23.0
Edith	9.1		
Group 3: Average of entire group	13.2	Group 6: Average of entire group	18.5
Shoemed	20.7	Blue Rose	27.7
Calady	15.5	1/ Kameki X Blue Rose	25.3
Caloro	14.1	Fortuna	20.8
Early Prolific	13.1		
Honduras	7.4		
Carolina Gold	6.2		

1/ Different selections.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, P. B. Dunkle) (Dec. 1)

The weather in November was exceptionally wet because of frequent light showers. The total precipitation was 3.09 inches, which is 0.98 inch above normal.

The highest temperature was 80° on the 9th and 10th and the lowest 31° on the 13th. Five frosts were recorded but none was considered a killing frost. The light frosts partly killed tender vegetation and checked the rapid growth of fall grains.

Seeding of the fall wheat, oats, and barley nurseries, which was begun the first half of October, could not be completed in November because of the frequent rains. Seeding of the advanced hard red winter wheat nursery and the advanced fall oat nursery was accomplished on the 22d and 23rd, the only two days during the month when seeding was possible. All varietal tests of wheat, oats, and barley, as well as all field plantings made during the first half of October, are in excellent condition.

There is a light but general infection of crown rust on oats. No stem rust of oats or wheat has been found on the station. Mr. Wallace Butler, in making a rust survey for the cereal office the latter part of November, found stem rust of oats and wheat 50 miles east of Denton and in south Texas.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Dec. 10)

The fall of 1935 was one of the wettest Kansas has experienced for several years. After the driest July on record at Manhattan, rains began falling on August 18 and have continued unabated. During the 4 months, August to November, there was a total precipitation of 20.08 inches, or exactly 9 inches in excess of the normal for the same period. Owing to the drought, it was impossible to prepare the rust nursery land for fall wheat until after August 18.

The temperatures for September, October, and November were below normal, while that of December has been nearly normal. The rains have continued into December. We, therefore, had a cool, wet fall in the vicinity of Manhattan. The soil seems to have taken full advantage of the moisture, and water has penetrated to a depth of about 9 feet on plowed land. Not in many years has our soil been so thoroughly wet and to such a depth. Springs and streams, dry for the past three years, are now flowing in good volume.

This situation extends to some extent to all parts of the state, although there are areas in the west-central and southwestern counties that are still dry. In some of the southwestern counties dust storms occurred as late as mid-November. The subsoil moisture is still low in much of the extreme western part of the State despite fair rains in late November.

The winter-wheat rust nursery was sown during the period of October 9 to 18, inclusive, and excellent stands were obtained. Owing to sowing somewhat later than usual, and to the unusually cool weather, wheat has not made its usual top growth. The plants, however, are sturdy and of excellent color.

For the first time in several years, stem rust has been found this fall on volunteer wheat near Manhattan. On October 29 an abundance of stem rust was found on the leaves of such wheat on land occupied by the 1935 rust nursery. It was found also on early sown wheat in the Hessian-fly nursery

on November 20. Some crown rust also was found on volunteer oats on the same day. The cold, cloudy weather of November and December has inhibited the development of stem rust and it is now hard to find. Only a few old uredia on dead or dying leaves can still be located by a diligent search.

Since November 1 leaf rust has been very abundant on volunteer wheat, but is now beginning to disappear. There is very little of it on wheat sown at the normal time and only the barest trace in the rust nursery. Mildew and speckled leaf blotch (Septoria tritici) are abundant on volunteer wheat and the latter is common on the lower leaves of fall-sown wheat.

Greenhouse experiments are well under way and the preparation of reports is progressing. In addition to a large number of F_1 plants, many foreign introductions, new selections, and promising hybrids from various sources are now being grown in the greenhouse and are being subjected to known physiologic forms of leaf rust. Studies on the distribution and prevalence of physiologic forms in the leaf-rust epidemic of 1935 also are under way.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, C. A. Suneson) (Jan. 2)

A seasonal low of -2° F. occurred on December 24, preceded by a light snow.

Controlled experiments show that despite poor fall growth and unfavorable hardening weather during November, average hardiness now obtains in field wheat. The increase in hardiness in December, as measured by effective freezing temperatures, was the greatest observed in this month during six years work.

Agronomists in the region may be interested in the following control data based on 8 replications on each freezing date:

VARIETY	C.I. NO.	Field-grown plants surviving-- Nov. 19 (Percent)	Dec. 12 (Percent)
Hope x Mediterranean	11665	6.9	16.3
Wheat x Rye	11403	41.8	62.7
Blackhull sel.	11737	42.4	69.9

The Hope x Mediterranean seed used was Lincoln-grown from a 50-percent survival stand.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Jan. 2)

Generally cloudy or foggy weather prevailed in November and December. Snow in November amounted to 0.96 inch of precipitation and in December to 0.88 inch, which is nearly double the average precipitation for these months. The depth of snow varies from about 2 inches on exposed land to 2 feet or more adjacent to trees or shrubs or in ravines. Temperatures were generally moderate except for a few days when below zero temperatures were recorded. The minimum temperature to date was -22° on December 25. The maximum temperature recorded that day was -5°. The minimum temperature on December 24 was -18°. A wind velocity of 17.8 miles per hour was recorded for a 24-hour period December 24. The combination of low temperature, high wind, and drifting snow made automobile travel very precarious and caused some fatalities. The total precipitation for the year 1935 was 18.30 inches, which is about 2 3/4 inches above the average annual precipitation for the past 22 years.

Mr. V. C. Hubbard was in Mandan during the Chrustmas holidays and visited the experiment station.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) [Dec. 31]

Greenhouse material consisting of F_1 plants and head selection increases is making good growth in spite of the shortage of sunshine. Most plants were headed by December 15 and the few crosses attempted are setting some seed. Threshing 1935 head selections and writing the annual report are receiving most attention at present.

The uniform winter-hardiness nursery sown at Langdon August 30 made very nice growth before freezeup and has since been well covered with snow.

The 1935 season at Fargo and Langdon was very satisfactory from the standpoint of durum experiments. Stem rust and root rots damaged yields and test weights greatly, but enough hybrid material came through with little damage to indicate that progress has been made over standard varieties with respect to disease resistance. Whether or not any of the hybrid strains in their present state equal standard varieties in milling quality will be difficult to ascertain until seed from a normal year and in larger quantities is available. Although many wheats, particularly standard varieties, did not produce enough seed for 1936 nursery seedings, in most cases reserves are available to permit their uninterrupted testing. The question as to how reliable will be yield comparisons from sowing seed of differing quality is receiving special attention.

Correlation coefficients in yield nurseries duplicated at Fargo and Langdon showed that yields were correlated to the extent of 0.70 to 0.80. Evidently rust was the factor making these coefficients so high, but partial correlation coefficients holding rust constant indicated that a variety yielding well at one station tended to yield well at the other, regardless of rust infection. It is considered important to follow closely the relation between yields of durums at the two stations in order to know to what extent breeding and yield results at Fargo may be applicable in the durum-growing area.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (Jan. 2)

The weather in December was extremely dry and the temperatures were far above normal. These conditions were conducive to soil blowing and several fields in this vicinity have drifted badly. The condition of winter wheat seedings has not improved.

Jack rabbits are more numerous this winter than they have been for several years and have become a menace to experimental seedings of winter wheat. The winter-wheat nursery was fenced early in December to keep the rabbits from digging up the rows of sprouted grain.

Precipitation : 0.15 inch. The maximum temperature was 52° on the 5th, 6th, and 17th; the minimum was 1° on the 23d and 24th and the mean 31°.

IDAHO

ABERDEEN SUBSTATION, ABERDEEN (Cereal Agronomy, Harland Stevens) (Dec. 23)

Yield of flax varieties in triplicate 3-row (17-ft.) plots grown under irrigation at Aberdeen Substation, 1935.

Variety	C. I. No.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Newland	188	44.7	53.5
Crown	784	44.0	53.0
Ottawa 770B	355	43.2	52.0
Rio	280	39.7	52.0
Linota	244	39.5	52.0
Bolley Golden	644	37.8	52.0
Bison	389	36.3	51.0
Redwing	320	35.2	53.0
Long sib x E	697	32.5	50.0

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FEB 24 1936

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

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Vol. 28 No. 2

February 10, 1936
Personnel (Jan. 11 - Feb. 10) and Field Station (Jan. 1 - 31)

PERSONNEL ITEMS

Dr. M. T. Jenkins spent January 8, 9, and 10 at Columbus, Ohio. He attended the 3-day hybrid corn school conducted by Dr. R. D. Lewis for farmer cooperators in the production of hybrid seed corn. The sessions were very well attended, 167 persons having registered, and there was a great deal of enthusiasm. Most of the farmers stayed for the entire three days.

The entire Division of Cereal Crops and Diseases takes pride in the recent announcement that Mr. Seth Pope, son of Dr. M. N. Pope, has been awarded a fellowship in the Department of Plant Pathology at Cornell University. Dr. Pope's enthusiasm for plant pathology is well known to all of us and it has no doubt been equally impressed upon his son. This outstanding demonstration of the combined effect of heredity and environment should be a source of encouragement to all of us who hope to see our children attain higher levels of interest than we have reached. --N. E. S.

Dr. L. R. Randolph was in Washington the latter part of January to consult with scientific investigators of the Department interested in cytogenetics, particularly with reference to induced polyploidy. He spent some time with Dr. S. L. Emsweller, of the Division of Fruit and Vegetable Crops and Diseases, in discussing mutual problems in this field and in helping to design equipment to be used for this purpose in studies with ornamental plants.

Mr. F. D. Richey and Dr. M. T. Jenkins left Washington on January 30 for Canal Point, Florida, to inspect the experimental winter corn plantings. With the exception of a few progenies that had been damaged early in the season by wire worms, the plots were in very good condition. Mr. H. S. Garrison expected to complete hand pollinating by February 7 or 8. A large number of pollinations were being obtained and the early ones appeared to be setting seed in good shape. Considering the fact that this has been the coldest winter at the station for many years the plantings have done exceptionally well and it appears that in any normal season it should be possible to obtain a good winter crop of corn.

On the way back they drove with Messrs. Traub and Robinson to the latter's headquarters at Orlando and looked over their work with subtropical fruit production as well as the citrus plantings at Eustis.

On February 5 at a Division luncheon Drs. H. A. Rodenhiser and C. S. Holton presented the latest results of their research on different aspects of the smut problem, particularly with reference to bunt of wheat and the smuts of oats.

Dr. Neil E. Stevens resigned on February 1 after 23 years of service in the Bureau of Plant Industry to try a teaching job in Illinois. He says that while he has been trying to earn his salary as an investigator he considers his outstanding achievements in the Department to have been three. (1) He suggested the farewell party for Secretary of Agriculture Meredith, which was effectively carried out by a committee under Mr. C. E. Chambliss; (2) he suggested the original of what has developed into the now internationally famous "Plant Science Literature"; (3) he also suggested the section of Dr. M. T. Jenkins' article for the 1936 Yearbook of Agriculture on the use of technical terms, which section was lifted by the editors and placed in the introduction of the Yearbook.

What Dr. Stevens thinks of us is plainly indicated in a paper written two years ago and approved this week by the Chief of the Bureau for publication in Science within the year, namely, "Bureaucracy as a Way of Life", which closes with the following paragraph: "The Civil Service is a pleasant place in which to live and work because it is made up of carefully selected people, selected not so much by the formal tests as by the type of work they do, the type of life they may be expected to lead, and the almost entire absence of a profit motive. I believe them to be distinguished among American groups for courtesy, generosity, industry, honesty, and happiness."

The Department friends of Doctor Stevens met on January 25 at an informal luncheon to express their appreciation and well wishes as he leaves for his new position. Appropriate remarks were made by Dr. A. B. Waite and Dr. C. L. Shear, with whom Dr. Stevens had been associated during most of his service in the Bureau of Plant Industry, and by Mr. F. D. Richey as Chief of the Bureau. An original poem was read by Dr. L. H. Flint. The presence of a large number of people attested to the esteem in which Dr. Stevens is held.--M. A. M.

Dr. G. A. Wiebe arrived in Washington on January 15 to take up his permanent headquarters. He will assist Dr. H. V. Harlan in the barley project.

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RECENT PUBLICATIONS

Earliness of Sexual Reproduction in Wheat As Influenced by Temperature and Light in Relation to Growth Phases. H. H. McKinney and W. J. Sando. Jour. Agr. Research 51(7): 621-641, figs. 1-5. October 1, 1935. (G-975)

Random Sampling and the Distribution of Phenotypes on Ears of Backcrossed Maize. George F. Sprague. Jour. Agr. Research 51(8): 751-758, figs. 1-4. October 15, 1935. (G-985)

Intergeneric Hybrids of Triticum and Secale with Haynaldia villosa. W. J. Sando. Jour. Agr. Research 51(9): 759-800, pls. 1-14, figs. 1-9. November 1, 1935. (G-984)

A Cytological Study of Puccinia malvacearum from the Sporidium to the Teliospore. Ruth F. Allen. Jour. Agr. Research 51(9): 801-818, pls. 1-9. November 1, 1935. (G-801) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Agricultural Experiment Station, University of California.)

Physiologic Specialization of Melampsora lini on Linum usitatissimum. H. H. Flor. Jour. Agr. Research 51(9): 819-837, pl. 1. November 1, 1935. (G-983) (Cooperative investigations between the North Dakota Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

Irrigation Experiments with Wheat. A. T. Bartel and Charles Hobart. Ariz. Agr. Expt. Sta. Bull. 151, pp. [353]-388, pls. 1-4, figs. 1-10. December 15, 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Arizona Agricultural Experiment Station.)

Registration of Standard Wheat Varieties, II. J. Allen Clark. Jour. Amer. Soc. Agron. 28(1): 64-65. January 1936.

Registration of Improved Wheat Varieties, IX. J. Allen Clark. Jour. Amer. Soc. Agron. 28(1): 66-68. January 1936.

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UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
WASHINGTON, D. C.

January 14, 1936

MEMORANDUM NO. 686

Coordination and Development of Research
in the United States Government

For the information and guidance of all members of the Department, there is quoted below a memorandum addressed by the President of the United States to the Scientific Agencies of the Federal Government under date of December 26, 1935:

"In order better to provide for the coordination and development of scientific research in the United States Government, the following steps have been taken:

"The National Academy of Sciences has set up the Government Relations and Scientific Advisory Committee, replacing the earlier Committee on Government Relations and taking over the work of the former Science Advisory Board, and all pertinent communications relating to Government scientific research addressed to the Academy will be referred to this Committee.

"The President's National Resources Committee has set up with my approval an Advisory Science Committee composed of persons designated by the American Council on Education, the National Academy of Science, and the Social Science Research Council, for the consideration of the broader long time scientific problems of natural and human resources.

"These Committees are available to assist Federal department bureaus or other agencies on appropriate questions and all administrative agencies of the Federal Government are hereby requested to cooperate with them."

All correspondence relating to these matters with respect to the various bureaus and offices of the Department of Agriculture will be prepared for the signature of the Secretary of Agriculture.

M. L. WILSON
Acting Secretary.

ADMINISTRATIVE NOTES

January 16, 1936

Through Tickets and Round Trip Rates

In June, 1934, an employee traveled from Kansas City, Mo. to College Station, Tex., to Baton Rouge, La., procuring two tickets for the travel at a combined cost of $31.28. The Comptroller General states that a through ticket with stopover privilege at College Station was available at a cost of $ 26.50, and has called upon the employee for a refund of $4.78.

On the same trip, the employee traveled from Gainesville, Fla., to Knoxville, Tenn., to Lafayette, Ind., on two tickets costing $31.87. The Comptroller General has called for a refund of $ 1.08, stating that through ticket with stopover privilege should have been procured at a cost of $ 30.79.

The employee has stated in connection with these disallowances that at the time tickets were purchased it was not known how much time would be spent at the intermediate points and therefore it was not considered advisable to procure through tickets. The Comptroller General will not accept the explanation, stating that "When the indefiniteness of time is the basis for not securing a through ticket with stopover privileges, it is incumbent upon the traveler to secure the through ticket and in the event the stopover limitation expires, the redemptive value of the unused portion of the ticket may be secured from the transportation company and another request issued for the balance of the trip."

A similar exception has been noted in connection with official travel by another employee from

College Station, Tex. to Fayetteville, Ark.	$ 14.38	
Fayetteville, Ark. to St. Louis, Mo.	10.61	
St. Louis to Washington, D. C.	32.54	$57.53

Allowed:

Fare College Station to Washington, D. C., via Paris and St. Louis,	48.78
Excess, refund demanded	$ 8.75

Extreme care should be exercised when procuring tickets to take advantage of all special, through, and roundtrip rates as the General Accounting Office will suspend any excess costs occasioned by failure to obtain the lowest first class rates.

H. S. Smith
Junior Administrative Assistant

DIGEST OF COMPTROLLER'S DECISIONS

No. A-60419

TRAVELING EXPENSES--AIRPLANE TRANSPORTATION--EXTRA COSTS

The matter of time saved in travel by air over travel by rail--for spending at headquarters or elsewhere--involves too many elements of uncertainty to serve as a determining factor whether appropriations are legally available for payment of the extra costs involved.

No. A-66399

TRANSPORTATION--RAILROAD ROUND-TRIP TICKETS--TRANSFERABILITY

Round-trip railroad tickets purchased on transportation requests may be used by one Government employee on the going trip and another Government employee on the return trip where the formal assent of the railroad company is secured to the waiver of the tariff restriction of nontransferability.

No. A-67032

TRAVELING EXPENSES -- FOREIGN VESSELS

Travel is authorized by a Foreign Agricultural Service officer, with his wife, in reporting to an assigned post in a foreign country, with temporary duty en route in another country, via an American vessel to his temporary duty station and a foreign vessel from a port of that country to his permanent duty station, where the all-American route would require such travel by train and vessel as to involve greater time, greater expense, and render impossible the performance of temporary duty en route.

Section 601 of the Merchant Marine Act of 1928 (45 Stat. 697), does not require the use of an American vessel classified as a freight vessel with only limited passenger accommodations.

No. A-65057

CONTRACTS--SPECIFIED QUANTITIES--USE OF WORDS "ABOUT" AND "MORE OR LESS"

Unless expressly provided otherwise the words "about" and "more or less", when used in contracts for purchase of goods by the Government in connection with specified quantities, provide against accidental and not material variations, and a trade definition in effect at the time of performance of the contract permitting a variation of 10 percent from the specified quantity is not effective to change or vary the terms of the contract.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

NEW JERSEY

AGRICULTURAL EXPERIMENT STATION, NEW BRUNSWICK, H. B. Sprague (Dec. 31, 1935)

The yields of 14 varieties of flax grown in duplicate 4-row plots are shown in the following table. The seed was sown April 18 and the different varieties ripened from July 20 to 24.

Variety	C.I.No.	Height (In.)	Acre yield Fiber 1/ (Lbs.)	Straw 2/ (Lbs.)	Seed (Bu.)
Bolley Golden	644	20	---	1,966	15.1
Rio	280	23	---	2,525	14.8
Ottawa 770B	355	23	---	2,226	14.2
Bison	389	23	---	2,176	14.0
Hybrid (19 x 112)19	743	23	---	2,640	12.1
Linota	244	24	296	2,495	12.0
Minn. selection	681	30	---	2,551	11.9
Redwing	320	23	---	1.974	11.0
J. W. S. 3/	---	27	---	2,285	10.8
Minn. selection 3/	677	29	350	2,651	10.5
Minn. selection	677	31	320	2,715	10.5
Minn. selection	657	30	---	2,164	9.8
Pinnacle 3/	---	35	432	3,205	7.6
Pioneer 3/	723	31	388	2,943	7.2

1/ Fiber includes both line and tow fiber. 2/ Straw taken as total weight less seed. 3/ Fiber variety. Sown at rate of 84 lbs. to the acre.

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Feb. 7)

The weather in January was very disagreeable. The average mean temperature was 5° lower than for January 1935. Sleet fell on 4 days and some snow on another day.

The maximum temperature for the month was 75° and the minimum, 25°.

The total precipitation of 2.95 inches fell on 16 days. The 26-year average precipitation for January is 5.40 inches.

Work on the station included mainly the repairing of fences, buildings, roads, and machinery; the construction of levees; and the cleaning of drainage ditches.

According to the "Estimate of the Rice Crop for the Year 1935", compiled by the Rice Millers Association, December 1935, the acreages and yields for Fortuna, Rexoro, and Nira rices were as follows:

State	Variety	Acres Harvested	Estimated yield per acre and total production in barrels 1/	Percentage of total Crop
La.	Fortuna	19,361	11.00	
Tex.	"	9,600	15.15	
Ark.	"	-----	-----	
Total		28,961	358,566	4.19
La.	Rexoro	15,341	12.43	
Tex.	"	15,387	15.99	
Ark.	"	------	-----	
Total		31,328	444,212	5.21
La.	Nira	11,403	12.49	
Tex.	"	2,185	16.48	
Ark.	"	1,782	14.68	
Total		15,370	204,707	2.39
Grand Total		75,659	1,007,485	11.79

1/ 1 Bbl = 3.6 bushels.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, P. B. Dunkle) (Jan. 1)

The total rainfall for December was 2.86 inches, or 0.36 inch above the 23-year normal, making the total for 1935 49.24 inches, or 16.21 inches above normal. This is the largest annual rainfall since 1920, when 49.93 inches were recorded. Frequent light rains in December interfered with field work. The only opportunity to finish seeding of the winter wheat nurseries was during the period from December 2 to 4.

Because of cold and wet soil, nursery grain seedings made late in November and early in January did not emerge until the period from December 26 to 30. All other grain seedings made prior to October 21 have made good growth and are in excellent condition to withstand hard freezing. The growth and heading of volunteer oats was stopped by the killing frost on December 2 and since that time they have remained at a standstill. Where pasturing has been possible volunteer oats have been very valuable to stockmen.

The mean daily temperatures for the first half of December were slightly above normal but for the latter half well below normal, the mean for the month being 1.7° below normal. The highest temperature was 65° on the 9th and the lowest 18° on the 26th. The first killing frost of the fall occurred on December 2 at a temperature of 25°.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Jan. 15)

The winter has been fairly mild and open to date. For the first half of January the maximum temperature was 68° on the 13th; the minimum for the same period was 8° on the 8th. The precipitation was 0.46 inches in the form of two snows.

Grain from the plots was recleaned and weighed. The yields of the date-varietal experiments were as follows:

Variety	Yield in bushels (56 lb.) per acre 1/ June 8 seeding	June 22 seeding.	Avge. of 2 dates
Dwarf milo	17.1	21.9	19.5
Beaver milo	7.1	9.8	8.4
Wheatland milo	7.9	13.9	10.9
Fargo milo	1.3	1.0	1.1
Spur feterita	5.7	12.8	9.3
Feterita	15.6	17.1	16.3
Dwarf hegari	0.5	0.1	0.3
Ajax	9.9	17.6	13.7
Chiltex	17.5	27.4	22.9
Club kafir	6.6	17.7	12.2
Early Red kafir	15.2	27.4	21.3
Dawn kafir	7.7	17.1	12.4
Sunrise kafir	5.5	14.4	10.0
Atlas	1.6	8.6	5.1
Reed kafir	11.6	22.7	17.2
Hydro kafir	5.8	12.8	9.3
Sharon kafir	10.5	21.3	15.9
Standard kafir	9.7	26.3	18.0
Bishop kafir	5.3	24.8	15.1
Darso	14.1	29.9	22.0
Grohoma	5.9	17.3	11.6

1/--- Each yield figure is the average of 2 guarded 1/47th acre plots.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard) (Feb. 1)

No winter-killing of winter wheat, oats, or barley is evident so far. Even volunteer spring oats in the wheat plots on cropped land has not been killed as yet.

A "degree of winterness" seeding of winter and spring wheat varieties was made on December 15. The grain sprouted promptly but has not yet emerged. A third seeding of the same 27 varieties was made on February 1.

Winter wheat in northwestern Oklahoma seeded after October 10 provided very little fall pasture. Fall growth was very slow due perhaps to comparatively cool, dry weather.

The maximum temperature for the last half of January was 63° on the 22nd; the minimum for the same period was 9° on the 30th. There was a trace of precipitation, making a total of 0.46 inch for the month.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Feb. 1)

The flax in the greenhouse has made good growth but has not yet commenced to bloom. Supplementary artificial illumination has been used only since January 15. The lighted plants are already noticeably further advanced than those receiving no artificial light.

Extremely cold, cloudy weather with frequent snow prevailed in January. Temperatures below zero were recorded on all but three days. During the last half of the month the temperature remained continuously below zero, except on two days when temperatures above zero were recorded. The maximum temperature in January was 29° on the 2d and 9th and the minimum -29° on the 21st. The mean temperature for the month was -5°.

The total precipitation in January was 0.61 inch. The total for November, December, and January was nearly double the average for these months. The ground is covered with snow varying in depth from about 6 inches on exposed hilltops to several feet in sheltered places.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Feb. 1)

Steady cold weather has prevailed during the month of January. The maximum temperature for the month was 34 degrees, and the minimum was -32° on the 19th. The mean temperature for the month was -0.1 or 10.6 degrees lower than the normal mean of 10.5 degrees. The precipitation for the month was 0.55 inch which is slightly above normal. There have been but few windy days this winter and no severe storms. The snowfall has been slightly heavier than usual since winter began. This will help to some extent in making up for the deficiency of moisture in the soil.

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (Feb. 1)

The weather for the month of January was very dry and there were no extremely low temperatures. However, the mean temperature for the month was 18°, or 3° below the average mean for January at this station. The average precipitation for January is 0.64 inch but only 0.26 inch was recorded this year.

Crop prospects remain unfavorable because of the low moisture supply. September seedings of winter wheat on the station have not emerged.

The precipitation was 0.26 inch. The maximum temperature was 48° on the 11th and the minimum -14° on the 31st.

The writer attended the conference of extension and station workers held at Bozeman, Mont., from January 20 to 25.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Jan. 15)

The precipitation recorded for 1935 was 12.85 inches, which is 3.42 inches less than a 16-year mean. Other climatological conditions were near the average and showed no pronounced variations.

(February 3)

The temperatures for January have been nearly normal while the precipitation has been somewhat above normal. There were several appreciable snowstorms, totaling 1.85 inches of precipitation. The last week of January was clear and

cold with minimum temperatures of -2° to -10°. On February 1 the temperature rose and from 14 to 20 inches of snow has fallen to date. The moisture in this snow for February is 1.17 inches, which is approximately normal for the month.

There are unofficial reports on the watersheds of the Logan River that the snow depth varies from 5 to 10 feet at elevations of 9,000 feet and above. This was before the last heavy snowstorm. Moisture conditions are now more favorable than for some years in northern Utah and southern Idaho.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (Feb. 1)

The January rainfall at the Biggs Rice Field Station was 3.49 inches, or 0.18 inch below normal. The total rainfall for the season up to February 1 is 9.14 inches, or 2.18 inches below the 23-year average. There is ample snow in the mountains to insure an adequate supply of irrigation water for the 1936 rice crop.

Considerable time has been spent this winter in studying the milling quality of rice varieties and of rice grown in plots receiving various fertilizers. The milling studies are being made with the small rice milling machine made by Mr. McGill.

The following table gives the average yields of Caloro rice grown in 1/15th-acre plots on which various fertilizers were applied. Each fertilizer was applied at three rates, i. e., rates that gave the same amount of nitrogen per acre as did ammonium sulphate when applied at 100, 150, and 200 pounds per acre. Each rate was tested in triplicate; therefore the following yields are the average of nine plots for each year.

Fertilizer treatment	Yield per acre (lbs.)		Average Increase (Lbs.)
	1935	Average 1932--35	
Ammophosko	4,603	4,088	933
Calcium cyanamid	4,272	3,776	621
Check	3,608	3,155	---
Leunaphos	4,552	4,109	954
Ammophos	4,638	4,142	987
Urea	4,215	3,908	935
Ammonium sulphate	4,678	4,082	1,109
Check	3,538	2,973	---
Leunasalpeter	4,590	4,041	1,068
Calurea	4,258	3,830	857

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APR 6 - 1936

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

Vol. 28 No. 3

March 10, 1936

Personnel (Feb. 11 - March 10) and Field Station (Feb. 1 - 29)

PERSONNEL ITEMS

Dr. McCall, Dr. Salmon, and Mr. Kephart, accompanied by Mr. P. H. Groggins, of the Bureau of Chemistry and Soils, attended a meeting at Ames, Iowa, on February 27 and 28 of workers participating in the bindweed research program in the Missouri Valley region. Twenty-two persons from the agricultural experiment stations of Iowa, Kansas, Colorado, Nebraska, Minnesota, and Wisconsin were present. The objectives of the program--physiological studies, tillage and cropping practices, and herbicide studies--were discussed at length with emphasis on the development of suitable laboratory and field technique. The difficult question as to which of the organic root reserves are chiefly significant in plant regeneration remained unanswered, although there was a feeling that the matter was much more clearly understood than before. Dr. McCall and Mr. Kephart returned to Washington after the meeting and Dr. Salmon proceeded to Moscow, Idaho, to complete arrangements for the bindweed program in that region.

Dr. M. A. McCall returned on March 3 from a short trip to Ames, Iowa, and Manhattan, Kans. The trip to Ames was primarily for the purpose of attending the regional weed conference called by Dr. S. C. Salmon to discuss plans for the conduct of weed research during the coming season. Advantage was taken of the opportunity to confer with members of the Division staff headquartered at Ames and Manhattan and to discuss with administrative officers of the two institutions various aspects of cooperative research.

RECENT PUBLICATIONS

Barley and Malt Studies: I. Developing New Varieties of Barley for Malting and Their Properties. James G. Dickson, H. L. Shands, Allan D. Dickson, and B. A. Burkhart. Cereal Chem. 12(6): 596-609, figs. 1-8. November 1935. (Based on cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture, and the Wisconsin Agricultural Experiment Station.)

Histology of the Caryopsis of Yellow Dent Corn, with Reference to Resistance and Susceptibility to Kernel Rots. Helen Johann. Jour. Agr. Research 51(10): 855-883, figs. 1-19. November 19, 1935. (G-973) (Cooperative investigations by the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

Evidence of Virus Mutation in the Common Mosaic of Tobacco. H. H. McKinney. Jour. Agr. Research 51(11): 951-981, figs. 1-4. December 1, 1935. (G-989).

Effect of Different Varieties of Sorghum on Biology of the Chinch Bug. R. G. Dahms, R. O. Snelling, and F. A. Fenton. (Note) Jour. Amer. Soc. Agron. 28(2): 160-161. February 1936. (Cooperation between the Divisions of Dry Land Agriculture and Cereal Crops and Diseases and the Oklahoma Agricultural Experiment Station, Stillwater, Okla.)

A Convenient Label Stake for Nursery Plats. R. O. Snelling. (Note) Jour. Amer. Soc. Agron. 28(2): 161-162, fig. 1. February 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Oklahoma Agricultural Experiment Station, Stillwater, Okla.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat improvement, E. S. McFadden) (March 2)

The past winter has been one of the coldest on record in this part of Texas. This was especially true of the month of February, although no extremely low temperatures were recorded. The lowest temperature was 16° on the 18th and the highest 82° on the 13th. The mean for the month was 48.7°, which was 5.6° below normal.

In spite of the continued cold weather, fall seedings of both winter and spring varieties of wheat, oats, and barley are showing high spring survivals. This is probably because the crops were practically dormant at the times when the hardest freezes occurred. Fall seedings of flax varieties were badly injured by the cold weather. The North Dakota varieties, N. D. 114 and Bolley's Golden, have shown considerable cold resistance. The plot of N. D. 114 still has a fair stand.

Leaf rust of wheat has survived the winter and is slowly increasing in definite infection centers in some of the wheat plots. No stem rust was observed here last fall, and none has been found to date this spring.

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Jan. 31)

The only effective precipitation in January was in the form of snow. An estimated total of 3 inches on the 18th drifted so that most of it blew off the fields. Five inches fell on the 29th, the largest snowfall since 1924. This snow did not drift and added some moisture to fields. The total precipitation for the month was 0.85 inch. Daily temperatures averaged above normal for the first half of January but considerably below during the latter half. The lowest temperature of the month was 3° on the 31st. As the ground was covered with snow during both severe freezes there was little if any damage to small grains.

Owing to late emergence, small grain has made only little growth. Because of low minimum temperatures during the latter part of December and unfavorable growing conditions in January, all grain crops are in an unusually well-hardened condition and seem to be withstanding the severe freezes without any damage.

Considerable time was spent in January preparing seed of oats and barley for spring seeding, which will start soon.

Reports from the Panhandle of Texas indicate that at least part of that region has received sufficient moisture so far this winter and grain is in good condition.

(March 1)

The precipitation in February amounted to only 0.11 inch, none of which was effective. As there was abundant subsoil moisture and small grains were dormant, no additional moisture was needed. The mean temperature for the month was 40.7o, or 7.7° below normal. Low temperatures during the latter part of January and the first half of February did very little damage to small grains because of the uniform cold and the excellent hardened condition of the plants.

At the end of February grains had started spring growth following about 10 days of warm springlike weather. The advanced spring oat nursery was sown on February 10 and 11. The head-row oat nursery of 2,700 rows was seeded on February 28 and 29. Earlier seedings are emerging at this writing. Some hybrid strains of Kanota x Victoria and Mortex x Victoria, as well as Victoria, Bond, 64 R, 64Q, and Early Ripe in the replicated oat nursery, were injured by cold weather, while adapted strains of Red Rustproof were injured very little.

Reports from the Texas Panhandle indicate that the wheat varietal test and the nursery experiments are in good condition.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (March 2)

February on the average was dry and cold for this area. The only moisture recorded was 0.09 inch in the form of snow. The maximum temperature was 84° on the 23rd and the minimum -7° on the 8th and 9th. The mean temperature was 27.2°, as compared with the 22-year mean of 41.0°.

There were two days of dust storms, namely, the 23rd and 24th. While not so thick as on many days in 1935 yet there are possibilities that "dusters" may develop unless areas to the west obtain some rains.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard) (March 2)

The warm weather that began on February 22 resulted in a noticeable spring growth of all winter cereals that had not winter-killed. The -7° temperatures of February 8 and 9 were too severe for volunteer oats and the varieties in the uniform winter-hardiness oat nursery. Nearly 100 percent of each was killed. Some leaves of winter barley and of the more tender winter wheat varieties were damaged, but few plants were killed.

All varieties in a degree-of-winterness experiment seeded on December 15 have emerged. Emergence covered a 6-day period. Considerable varietal variation was evident. A January 15 seeding has not emerged so far.

Twenty-four varieties of spring barley were seeded on February 25--three days earlier than the average for the past five years. Sixty-three varieties of oats and five flax varieties were also seeded on that date.

Two dust storms settled on us last week from the Northwest. Practically no soil moved on the station or in the immediate vicinity of Woodward.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (March 3)

The first two weeks in February were unusually cold. It has been somewhat warmer during the last part of the month. The maximum temperature for February was 70° on the 22d and the minimum -28° on the 7th. The precipitation was 0.15 inch.

It is a little early to tell just how much winter-killing has occurred in the winter wheat nursery. The more hardy varieties have had very little killing and the more tender varieties show a good deal.

The first seeding of the date-of-seeding experiment with spring grains was made on February 27.

The soil in this region does not appear likely to be subject to wind erosion, as it has a good cover of dry vegetation.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Feb. 17)

The period from the middle of January to the middle of February exceeded all previous records for low temperatures. The average daily maximum temperature for the 31 days from Jan. 16 to Feb. 15, inclusive, was -8° and the average minimum -24°. For the first 15 days of February the average maximum was -12° and the average minimum -29°. The maximum temperature was 0° and the minimum -46°. The lowest temperature previously recorded at Mandan was -43° in 1916 and the lowest previously recorded at Bismarck during the past 61 years was -45°.

The precipitation for the first half of February was 0.34 inch. The accumulation of snow is much greater than usual at this time of year because there has been practically no thawing all winter.

It is unfortunate that the winter wheat did not emerge in the fall because the seeding has had adequate snow covering all winter.

The flax in the greenhouse is not yet in bud though the plants otherwise have made normal growth. The sunlight has been deficient on account of prevailing cloudy weather and a covering of snow over the glass most of the time.

(March 2)

February was the coldest month on record for over 60 years in this locality. The mean temperature was -12°, which is 27° lower than the average February mean and 3° lower than for any month on record during the previous 61 years. The maximum temperature for the last half of February was 33° on the 29th and the minimum -41° on the 16th. The precipitation for February was 0.38 inch. Some thawing of snow has occurred during the past two days. There is danger of serious flooding of streams in the vicinity of Mandan if rapid thawing should occur.

Some of the flax plants in the greenhouse are budded but have not yet bloomed.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (March 2)

The month of February set new absolute minimum and low mean temperature records for this station. The temperature dropped to 48° below zero on the 16th, and the mean for the month was 3° below zero. During the 7-day period from February 11 to 17 the maximum temperature was 12° below zero.

On the 6th and 7th the fallow fields were swept free of snow and the soil temperature dropped to zero or below for 42 hours and was 10° below zero for 22 hours. Some attempt has been made to determine the extent of injury these temperatures may have caused in winter wheat fields by transplanting plants to boxes indoors but no information is yet available.

The precipitation recorded was 0.90 inch which is somewhat above the normal for February. During the last few days most of this snow has melted.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (March 2)

Rains and snows fell intermittently during February supplying abundant moisture in both the valleys and watersheds of northern Utah. Prof. G. D. Clyde reported 34.6 inches of water for the average moisture content of snow at 9,000 feet elevation. The corresponding moisture at lower levels is proportionately higher than in other years since measurements were taken.

Unofficial reports show considerably more snow and water content in the mountains north of Logan, where the figures reported above were observed. In the vicinity of Logan the snow cover is practically gone while some 18 inches or more remain in the northern part of Cache Valley.

The precipitation for February at the Experiment Farm totaled 2.44 inches. Considerably more moisture was recorded at the College and at other stations including Salt Lake City. All these data indicate an abundant water supply for this season.

The mean temperature for the month was 31.5°, which is rather high for February. The minimum temperature for the year was 16° below zero, recorded on February 8.

Most of the preparations for spring seedings have been completed although it may be some time before operations begin.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture

(NOT FOR PUBLICATION)

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Vol. 28 No. 4

April 10, 1936

Personnel (March 11-April 10) and Field Station (March 1-31)

PERSONNEL ITEMS

Mr. A. C. Dillman left April 7 for a trip through the Southwest to the Pacific Coast for the purpose of inspecting field experiments with flax and consulting with cooperating State station officials with regard to seed flax. The seed flax industry, particularly in California, has developed rapidly in the last few years and gives promise of at least supplying domestic requirements in the Pacific Coast area, which heretofore has depended largely on foreign importations.

Mr. C. C. Fifield attended the meetings of the Pioneer Section of the American Association of Cereal Chemists at Manhattan, Kans., on April 3 and 4. The problem of wheat quality was discussed from various points of view. One of the discussions centered around recent developments in the milling and baking laboratories of the Kansas station where differences in curves obtained in a recording mixing machine are being used to evaluate different varieties. All of the discussions were important from the standpoint of future plans for the Division research program.

Dr. H. V. Harlan left Washington on April 2 for Chicago to interview members of the malting trade in connection with barley investigations. He will take notes on and harvest experimental barley plantings in Arizona, California, Oregon, and Idaho and confer with Federal and State officials on cooperative experiments.

Dr. J. R. Holbert, of Bloomington, Ill., Mr. P. E. Hoppe, of Madison, Wis., and Mr. J. F. Trost, of La Fayette, Ind., came to Washington on March 16 for a 4-day conference with Dr. M. T. Jenkins to discuss and coordinate the 1936 corn disease program of the three stations. Arrangements were made for a cooperative uniform inoculation experiment with Diplodia stalk rot, which will be conducted at the three stations and also in Ohio and Iowa. The methods of taking data on ear rot diseases were discussed and it was agreed that determinations of percentage of damaged kernels, in accordance with the methods used by the Federal Grain Standards Division in determining total damage for Federal grain grades, offered most promise and that ear rot data for the coming season will be taken on this basis.

Dr. M. T. Jenkins left Washington on March 30 for Knoxville, Tenn., and Baton Rouge, La., to confer with Department personnel and others regarding cooperative corn experiments. He returned April 6.

Dr. M. A. McCall was in Boston, Mass., on March 16 to interview prospective candidates for employment in connection with the cooperative wheat polyploidy project headquartered at Columbia, Mo.

Mr. Joseph G. O'Mara and Mr. Ernest B. Sears have been appointed agents in the cooperative wheat polyploidy project at the Missouri Agricultural Experiment Station, Columbia, Mo.

A conference was held at Ames, Iowa, on February 27 to 29 at which representatives of the States of Minnesota, South Dakota, Iowa, Nebraska, Kansas, and Wisconsin were present to discuss with Dr. S. C. Salmon and Mr. L. W. Kephart the noxious weed research program to be inaugurated this spring at Hays, Kans., Lamberton, Minn., Cherokee and Ames, Iowa, and Lincoln, Nebr. Thirty-one persons attended the 3-day session.. The discussions were informal and centered on the physiology and chemistry of root reserves, the nature and action of herbicides, and the use of tillage and cropping methods in weed control. Committees were appointed to present plans for experiments to be conducted on these three fields. As a result of the conference it is believed that all workers have a much clearer understanding of the purpose of the weed project and of the technology best suited to its development.

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RECENT PUBLICATIONS

Reaction of Oat Varieties to Physiologic Races of Loose and Covered Smuts on Red Oats. George M. Reed and T. R. Stanton. Jour. Agr. Research 52(1): 1-15. January 1, 1936. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Brooklyn Botanic Garden.)

Widespread Occurrence and Origin of Fatuoids in Fulghum Oats. F. A. Coffman and J. W. Taylor. Jour. Agr. Research 52(2): 123-131, fig. 1. January 15, 1936.

Barley Disease Survey During the Season of 1935. J.G. Dickson and G. A. Wiebe. U. S. Dept. Agr. Plant Dis. Reptr. 20(1): 8-9. Jan. 15, 1936.

Pythium Root Rot of Milo. Charlotte Elliott, L. E. Melchers, C. L. Lefebvre, and F. A. Wagner. (Abstract) Phytopathology 26(2): 92. February 1936. (Cooperative investigations between the Kansas Agriculture Experiment Station, and the Division of Cereal Crops and Diseases.)

Nitrogen Metabolism of Ophiobolus Graminis. Hurley Fellows. (Abstract) Phytopathology 26(2): 93. February 1936. (Cooperative investigations between Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Effect of Take-All Lesions on the Roots, Crowns, and Culms of Wheat Plants. Hurley Fellows. (Abstract) Phytopathology 26(2): 93. February 1936. (Cooperative investigations between the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Browning Disease of Flax in the United States. H. H. Flor. (Abstract) Phytopathology 26(2): 93-94. February 1936. (Cooperative investigations between the North Dakota Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Relation of Leaf Rust (Puccinia triticina) Infection to the Rate of Transpiration in Two Varieties of Wheat. C. O. Johnston and E. C. Miller. (Abstract) Phytopathology 26(2): 96-97. February 1936. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Microorganisms Antibiotic or Pathogenic to Cereal Rusts. M. N. Levine, R. H. Bamberg, and R. E. Atkinson. (Abstract) Phytopathology 26(2): 99-100. February 1936. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Division of Plant Pathology and Botany, University of Minnesota.)

Chlorosis of Rice Induced by Iron Deficiency. E. C. Tullis and E. M. Cralley. (Abstract) Phytopathology 26(2): 111. February 1936. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Relative Prevalence of Various Corn Ear Rot Fungi in the 1934 Crop. P. E. Hoppe and J. R. Holbert. U. S. Dept. Agr., Plant Dis. Reptr. 20(2): 26-29. maps. Feb. 1, 1936.

A Nursery Thresher for Sorghum Heads. R. O. Snelling. (Note) Jour. Amer. Soc. Agron. 28(3): 253-254, fig. 1. March 1936.

Effect of Crown Rust on the Composition of Oats. H. C. Murphy. Phytopathology 26 (3): 220-234, figs. 1-2. March 1936. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Botany and Plant Pathology Section of the Iowa Agricultural Experiment Station.)

Reaction of Certain Varieties and Species of the Genus Hordeum to Leaf Rust of Wheat, Puccinia triticina. C. O. Johnston. Phytopathology 26(3): 235-245, fig. 1. March 1936. (Cooperative investigations between the Department of Botany, Kansas Agriculture Experiment Station, and the Division of Cereal Crops and Diseases.)

Improvement of Oats in Kansas. John H. Parker. Feedstuffs 8(11): 10-11. March 14, 1936. (Cooperation between the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

UNITED STATES DEPARTMENT OF AGRICULTURE.
BUREAU OF PLANT INDUSTRY
WASHINGTON

Office of Chief of Bureau.
B. P. I. Memo. no. 876. March 12, 1936.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

An unfortunate incident has just occurred, in which a scientist in the Bureau agreed to prepare a radio talk for an outside agency without prior approval from this office. The talk was scheduled and advertised, and the manuscript therefor submitted for approval just ahead of the time of the broadcast. Because of the nature of the material, and for purely administrative reasons, it was necessary to withhold approval, to the embarrassment of the individual, the Bureau, and the broadcasting agency.

This is brought to your attention, in order to promote certainty of obtaining prior administrative approval by employees of the Bureau of acceptance for a broadcast or other program appearance or presentation, in accordance with existing Bureau regulations.

Sincerely yours,

F. D. RICHEY
Chief of Bureau.

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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON

Office of Chief of Bureau
B. P. I. Memo. no. 877 March 19, 1936.

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

Effective this date, the activities conducted under the sub-appropriation item for Genetics and Biophysics will be administered in the Division of Cereal Crops and Diseases, to which Division the personnel and property of the Division of Genetics and Biophysics are hereby transferred.

Sincerely yours,

F. D. RICHEY
Chief of Bureau.

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (April 7)

The weather conditions in March were rather mild. The maximum temperature was 86° and the minimum 41°.

The total precipitation was 1.21 inches, which occurred on 8 days and was the lowest for March since 1916.

Rice farmers took advantage of the favorable March weather and accomplished much in soil preparation and seeding. Many fields of rice have been sown and a few are up to a stand. Dry weather towards the end of the month interfered with germination, and will result in poor stands if rain is delayed or the fields are not flushed.

Work on the station is proceeding satisfactorily. Rice and corn in date-of-seeding plots were seeded according to schedule. Corn has germinated nicely. Rice sown March 17 is up to a stand only in those places that were well pulverized and moist at the time of seeding. If rain does not occur soon it will be necessary to wet the plots to soften the crust that has formed over young plants and to cause germination.

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ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, L. J. Garot) (March 21)

Winterkilling of fall-sown oats in field plots and nursery rows on the Station will not exceed an average of 5 percent. Winter survival in commercial fields in the vicinity of Stuttgart and DeWitt, Ark., is around 90 percent. Injury to winter oats by low temperatures was offset by unusually dry weather during the winter months. The precipitation for December, January, February, and the first half of March, has been the lowest for these months that has ever been recorded at the Station. A drought during the winter months has been quite unusual in this section of Arkansas. At present some of the oats in the field plots are suffering from lack of moisture, particularly where the plots have suffered by heaving from the series of freezes. However, in general, oats are in good condition on the station.

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TEXAS

SUBSTATION NO. 6 DENTON (Wheat Improvement, I.M. Atkins) (March 15)

Unusually favorable growing weather has prevailed during the first half of March. All small grains made very rapid growth. Although the rainfall so far in 1936 is considerably below normal and the surface soil is dry, there is ample subsoil moisture and small grains have not suffered. Owing to cold weather in January and February, followed by rather dry weather with few dews, none of the rusts of grain has appeared at this date. All spring-sown grains have emerged and are making rapid growth. The first seeding of flax was made on the 14th.

Reports from the Texas Panhandle indicate that the small grain nurseries and varietal tests at Amarillo, Hereford, and Plainview are in excellent condition. It is not known just how general this condition is in the Plains area.

(March 31)

The weather of the last half of March continued favorable for the growth of crops. The precipitation for the month was 1.82 inches, which, although 0.22 inch below normal, was adequate for the needs of small grains because of an ample supply of subsoil moisture received during the winter. Temperatures were abnormally high, the mean of the month being 4.6° above normal. The maximum temperature was 91° and the minimum 31°. Only one light frost occurred during the month. The wind movement was considerably above normal and the humidity for the month was the lowest for March since 1925.

Small grains made unusually rapid progress during the month and at this writing fall sown barley and early varieties of wheat such as Early Blackhull and Nebraska No. 28 are in the boot. Spring oats were seeded rather late and are not doing so well. Leaf blotch, green bugs, and lack of ample surface moisture have slowed the growth. Additional moisture will soon be needed by all grains, especially if the high winds of the past few days continue.

Mr. P. B. Dunkle, superintendent of the Substation, made a trip to Amarillo March 17 to 25. He reports the experimental plots at Amarillo in fair condition up to the present but now needing rain. Winds were beginning to cause soil movement and damage to the crop.

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OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Wheat Improvement, V. C. Hubbard) (March 16)

As may be expected in the Great Plains, the weather continues dry. Cereals are taking advantage of the warm weather, however, and making rapid growth. How long they will continue to do so without rain is questionable, as soil samples taken on March 5 showed an average of only about 10 percent of moisture in the first four feet of soil.

Spring oats, barley, and flax varieties have emerged. Stands on the lighter soils are slightly ununiform.

Dust storms are still evident in western Kansas and in the Panhandle region though very little dust has moved in the Woodward area.

No precipitation has fallen so far this month.

(April 2)

The weather was very dry in January, February, and March. Only 0.46 inch of rain fell in January, 0.09 inch in February, and none in March, making a total of 2.30 inches below normal. The mean temperature in March was 51°, which was cooler than in 1935 but 4° warmer than the average for the 21-year period from 1915 to 1935. The maximum temperature was 80° on March 9 and the minimum 24° on March 5 and 31.

Winter wheat in the nursery and in the varietal plots is making rapid growth considering the drought. That in varietal plots on cropped land showed signs of drought on March 30. In the rate-and-date-of-seeding plots burning is becoming progressively evident, being most severe in the early seeding made on September 15.

Soil samples taken on March 21 showed the soil in the winter wheat plots to contain approximately 2 percent less moisture than those taken two weeks earlier.

Dust storms this spring have not been so frequent as were those of last year, with the exception of one windstorm on March 23 which moved considerable soil in the Woodward area. Comparatively few wheat fields in this area have been damaged and most of those that suffered were sown late on very sandy or poorly prepared land.

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COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) [April 3]

March opened with snow flurries on the 1st, 3d, and 4th amounting to a trace on each day. The weather then remained open until the 18th when 0.17 inch of precipitation was recorded. This was the beginning of a stormy weather period that lasted until the end of the month. Precipitation occurred on the 23d, 25th, and 31st. The temperature for the month was generally mild. The maximum was 75° on the 10th, and the minimum 8° on the 31st. The precipitation was 0.64 inch.

The wind movement was moderate. Dust storms occurred on March 10 and 14. These were not very severe. No severe dust storms are expected in this region this year as the soil is well covered with dry vegetation.

Winter wheat has survived the winter on nearly all plots. Some winter-killing has occurred on plots seeded to the less winter hardy varieties. The surface soil is dry and moisture would help the wheat, which has started growth. Fallow plots have considerable subsoil moisture.

Oats, barley, and spring wheat are being seeded at present. This seeding probably will be completed the first week in April.

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NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (March 31)

Since the first of March the winter wheat nursery and the plots have been free of snow after having been covered for several weeks. Although temperatures were abnormally low for a rather long period very little winter-killing occurred, probably owing to the heavy snow covering. Some leaf injury was observed but very few plants were killed. Such varieties as Quivira and Early Blackhull showed less than 5 percent killing in the plots.

In the soft winter wheat nursery the tender variety Redhart showed leaf injury but very few dead plants. All other varieties came through the winter in good shape. Some winter barley also survived.

During March there was almost no precipitation, and for the most part temperatures have been mild until the last two days. The surface soil is dry and in some places cracked. On several days the wind velocity has been high and considerable dust has been in the air.

Reports from North Platte indicate that differential killing has occurred in winter wheat. The surviving plants were badly in need of moisture to hasten recovery. At Alliance, the winter wheat nursery is reported to be a total loss owing mostly to drought and the plots are in rather poor condition. Just recently some moisture has been reported in western Nebraska and conditions may improve.

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NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (April 1)

Low temperatures with frequent snow prevailed in March. The maximum temperature was 56° on the 17th and the minimum -1° on the 4th. The precipitation was 1.12 inches, chiefly in the form of snow.

The heavy accumulation of winter snow and unusually thick ice in the streams caused fear of serious flooding in Mandan in the event of rapid thawing. Mild temperatures early in March, interspersed with colder weather, caused melting of most of the snow in the open. Most of the moisture must have been absorbed by the soil as there was comparatively little runoff.

Water started running over the ice in the Heart River on March 7. On March 9 some of the ice came down and gorged at the mouth of the stream, causing a little flooding in lowlying parts of Mandan. Dynamiting of the gorge caused rapid recession of the water. The Missouri River rose over 10 feet between March 10 and 20, flooding bottom lands south of Mandan, but failed to reach flood stage at Mandan. Cold weather during the latter part of March checked the rise. Both streams have now receded almost to the winter level. High water is expected again in response to warmer weather, but danger of a serious flood appears to have passed.

The landscape is still dotted with white patches remaining from deep drifts that accumulated during the winter. The snow that covered the winter wheat land has disappeared and the surface of the ground is still frozen hard. Emergence of the wheat is not expected until warmer weather.

The flax plants in the greenhouse are setting a good crop of bolls.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (April 3)

Although February was the coldest month in the history of the Substation with a mean temperature of -12.2°, March was warmer than usual until the latter part of the month. During the first half of March the snow melted rapidly and most of the resulting moisture soaked into the dry soil. The maximum temperature was 60° recorded on the 23rd and the minimum was -1° on the 31st. The minimum was 4° below zero this morning. The precipitation for March was 0.59 inch. The ground is now frozen and there is a little fresh snow on the ground.

During the warm weather in March farmers were preparing to begin field work and some seeding was reported near the South Dakota line. Seed is being prepared for seeding at the Substation.

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MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, J. L. Sutherland) (April 1)

The weather in March was, in general, dry and open, although some snow was received during the last week. Moderate temperatures prevailed for the first three weeks and there was a great deal of freezing and thawing weather. Subzero temperatures were recorded on the last few days of the month.

The past month has been hard on winter wheat seedings that were already weakened by the severe weather in February. The ground cracked badly during the freezing and thawing weather and in many instances left the young plants exposed. No doubt, considerable killing has occurred in fields seeded with the ordinary surface drill or nursery planter.

The precipitation for March was 0.22 inch. The maximum temperature was 58° on the 6th and the minimum -20° on the 29th.

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WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (March 31)

Reports from the central and northern portions of the Washington wheat area are to the effect that a considerable portion of the early seedings of wheat was killed by the sudden cold spell of late October. The late seedings, most of which did not emerge until spring, apparently were not killed.

All varieties of fall sown wheat in the Pomeroy and Walla Walla nurseries survived the winter with but little loss in stand. The varietal nursery at Pullman also looks well. However, in the classification nursery, which was seeded about two weeks earlier, many of the varieties were killed by the October freeze.

The reports from the Lind station are confusing. Some of the less winter-hardy varieties are reported to have survived the winter better than the hardy ones.

The outlying spring wheat nurseries were seeded during the period from March 23 to 25. Field operations in the Palouse have been stopped by wet weather followed by freezing temperatures and snow during the past few days.

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OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (April 1)

All fall-sown grain on the Station emerged with good stands about January 10, but, with the exception of a few warm days, there has been very little growing weather since that time. Most of the spring seeding throughout this area was completed by March 25, but no plants have emerged as yet. Warm weather will be needed before long if good yields of grain are to be obtained.

Unusually heavy precipitation in January provided moisture to a greater soil depth than has been noted for several years. With average conditions during the late spring and early summer, excellent crops should be obtained. The temperature dropped below zero on 11 days in February, but no damage was done to cereal crops. The minimum temperature was -21° on February 17.

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UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (April 1)

Weather conditions for the first 20 days of March were characterized by clear days and cool nights. Many farmers were able to do considerable spring work, including the seeding of small grains.

The barley nursery and two replications of the wheat nursery were seeded on March 20 and 21. A sudden storm came up about noon on the 21st and has continued, at intervals, up to the present date. Approximately 1 foot of snow fell March 31.

It was impossible to reach the winter wheat nursery, owing to heavy drifts, until the last week in March. The snow cover had just disappeared, making the soil too muddy for a close inspection of the grain. Much of the grain had emerged under the snow, making fair stands, yet many of the tender plants appear to have been frozen. Commercial fields in the vicinity of Newton that had emerged last fall were green and showed good stands, while other fields were just emerging.

A number of farmers in northern Utah and southern Idaho are reseeding winter wheat lands to Baart.

Mr. A. F. Bracken reports considerable injury to winter wheat in Juab County. No grain had emerged on March 1, when the snow disappeared. Drying winds, which lasted for more than 3 weeks, formed a heavy crust. From 2,000 to 3,000 acres of wheat failed to emerge, and the stand was reduced on an additional acreage. Preparations were being made to reseed to Baart.

Unless conditions become very favorable, winter wheat yields will, no doubt, be poor owing to late emergence and poor stands.

Moisture conditions in northern Utah are more promising than for many years. The precipitation recorded at the Experiment Farm since Oct. 1, 1935 is 9.73 inches.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol 28 April 25, 1936 No. 5
Personnel (April 11 - 25) and Field Station (April 1 - 15)

PERSONNEL ITEMS

Mr. C. E. Chambliss left Washington on April 21 for a two weeks trip in Florida, Georgia, and South Carolina to confer with officials of the State agricultural experiment stations and others on the testing of Patna rice and the introduction of Zizania and perennial rices.

Mr. F. A. Coffman is on a month's trip in the interests of cooperative oat investigations in Virginia, Tennessee, Mississippi, Louisiana, Texas, Alabama, Florida, Georgia, South Carolina, and North Carolina. He will record data on cooperative oat experiments and confer with employees of Federal and State agricultural experiment stations relative to future cooperative experiments, He will also collect normal and diseased oat plants for laboratory study. Mr. Coffman will return to Washington about May 25.

Dr. M. T. Jenkins recently conferred with officials of the agricultural experiment stations in Ohio, Indiana, Illinois, Iowa, Kansas, and Missouri regarding cooperative corn research.

Dr. McCall will leave Washington on May 5 for an extended trip in the interests of cooperative cereal investigations in Missouri, Arkansas, Louisiana, Texas, Oklahoma, Arizona, California, Nevada, Oregon, Idaho, Utah, Montana, North Dakota, Minnesota, Wisconsin, and Illinois. He expects to return to Washington about June 20.

Dr. H. A. Rodenhiser left Washington on April 23 for Mexico for the purpose of making smut collections in areas where the same varieties of wheat have been grown since early colonial periods in order to determine whether the physiologic forms of bunt found there are the same as those found in other parts of wheat-producing North America. This has some significance from the standpoint of the practical phases of the breeding program in relation to the distribution of physiologic forms in the United States.

Dr. S. C. Salmon left Washington on April 21 to confer with research workers in the Pacific Northwestern States prior to the establishment of a research program on weeds in that area. A conference for this purpose will be held at Moscow, Idaho, on April 30 and May 1. Dr. Salmon will also inspect the newly inaugurated weed research undertakings in Nebraska, Kansas, Minnesota, and Iowa as well as cooperative work with wheat along the way.

Dr. G. A. Wiebe is at Davis, Calif., where he is assisting Mr. C. A. Suneson in making selections and developing plans in connection with the cooperative cereal program in California recently taken over by the latter. Dr. Wiebe also will complete certain of his own research which it was necessary for him to discontinue incident to his transfer to Washington headquarters the first of the year.

During the summer months Dr. Wiebe will take notes on cooperative barley experiments and confer with the personnel of the Division and of State agricultural experiment stations on barley research in several of the western States.

RECENT PUBLICATIONS

Experiments with Wheat and Other Crops in Eastern Oregon. D. E. Stephens. Proc. 8th Annual Meeting Eastern Oregon Wheat League [Dec. 6 and 7, 1935], pp. 17-24. [1936] (Cooperative investigations of the Divisions of Cereal Crops and Diseases and Dry Land Agriculture and the Oregon Agricultural Experiment Station.)

Breeding Rust-Resistant Spring Wheats. L. R. Waldron and J. A. Clark. Science (n. s.) 83(2144): 106-108. January 31, 1936.

The 1935 Iowa Corn Yield Test. Joe L. Robinson and M. M. Rhoades. Iowa Agr. Expt. Sta. Bull. 343: [153]-198, fig. 1. February 1936. (Cooperative investigations of the Iowa Agricultural Experiment Station and the Iowa Corn and Small Grain Growers' Association and the Division of Cereal Crops and Diseases.)

Chromosome Differences in a Wheat-Rye Amphidiploid. V. H. Florell. Jour. Agr. Research 52(3): 199-204, figs. 1-2. February 1, 1936.

Origin and Production of Morphologic and Pathogenic Strains of the Oat Smut Fungi by Mutation and Hybridization. C. S. Holton. Jour. Agr. Research 52(4): 311-317, fig. 1. February 15, 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

The Hybrid Sweet Corn Situation. G. M. Smith. Canning Age 58 (29): 8, 10, 12. February 24, 1936.

Grain and Forage Sorghum Varieties at the North Platte Experimental Substation. L. L. Zook. Nebr. Agr. Expt. Sta. Bull. 297, 12 pp., illus. March 1936. (The grain sorghum experiments were conducted cooperatively by the Division of Cereal Crops and Diseases and the North Platte Substation from 1924 to 1933, inclusive.)

A New Pseudodiscosia. Roderick Sprague and A. G. Johnson. Mycologia 28(2): 181-185. March-April 1936. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Oregon and Washington Agricultural Experiment Stations.)

An Interesting Seed Combination. T. R. Stanton and E. G. Boerner. (Note) Jour. Amer. Soc. Agron. 28(4): 329-330, fig. 1. April 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases, B. P. I., and the Grain Division, B. A. E.)

Second Experimental Forecast of the Incidence of Bacterial Wilt of Corn. N. E. Stevens. U. S. Dept. Agr. Plant Dis. Rep. 20(6): 109-113, illus. (maps) April 1, 1936.

Leaf Reddening in Winter Oats in Western Oregon. R. Sprague. U. S. Dept. Agr. Plant Dis. Rep. 20(6): 114-115. April 1, 1936.

Inhibition of Arsenic Injury to Plants by Phosphorus. A. M. Hurd-Karrer. Jour. Wash. Acad. Sci. 26(4): 180-181. April 15, 1936.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF BUDGET AND FINANCE
WASHINGTON, D. C.

April 16, 1936.

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES:

Subject: Meter readings required for travel on mileage basis by own motorcycle or automobile.

"Paragraph 83 (e) of the Standardized Government Travel Regulations contains the following provision:

' * * * When travel is authorized by own motor cycle or automobile on a mileage basis, places between which the travel was performed and meter readings representing the distances traveled must be shown in the expense account, which will be accepted as prima facie evidence of the correctness of such distances, subject to verification by means of official table of distances, or in absence of the required information therein by means of other acceptable evidence. A definite statement as to ownership of the motor cycle, automobile, or other conveyance used must invariably be made in the expense account.* * *'

While the regulations require meter readings to be shown upon the travel voucher, such a regulation is not considered as requiring meter readings to the exclusion of other evidence of equal weight; that is to say, the fact to be established is the distance actually traveled and while evidence of meter readings is desirable as constituting prima facie evidence, it nevertheless is subject to verification from other sources. * * * The information required by Standardized Government Travel Regulations approved by the President, must be furnished in the future."

W. R. Fuchs,
Acting Director of Finance.

Meter readings should be shown in the columns headed "From" and "To" on U.S.D.A. Form 22, in duplicate, to accompany every claim for reimbursement for mileage in personally owned automobile.

H. S. Smith
Jr. Administrative Assistant.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON

Office of Chief of Bureau
B. P. I. Memo. no. 884

April 27, 1936.

MEMORANDUM TO HEADS OF DIVISIONS.

Gentlemen:

I quote below in full a letter dated April 23, 1936, from Mr. V. C. Burke, Postmaster, Washington, D. C.:

"It has been the experience of this office that several of the field offices of government bureaus are not acquainted with the fact that it is necessary that air mail postage be fully prepaid on matter sent by them via air mail. The failure of officials connected with such field offices to prepay fully the postage required necessitates that this office call upon them in every instance to transmit here the deficiency in postage.

"It is noticed that during recent months there has been an increase in such cases and it has necessitated the utilization of considerable time and labor on the part of employees here in communicating with the parties at fault and in accounting for the deficient postage.

"I shall appreciate it, therefore, if you will issue such instructions to all field offices under the supervision of your Department as will result in matter sent by them being fully prepaid with the air mail postage in the future."

Will you please see that this is called to the attention of members of your staff, both Washington and field.

Sincerely yours,

F. D. Richey
CChief of Bureau.

U. S. Dept. Agr. Misc. Pub. 229 entitled "Development and Significance of the Great Soil Groups of the United States", by Charles E. Kellogg, of the Bureau of Chemistry and Soils, contains information of interest to every crops worker. With this number of the Cereal Courier is enclosed a copy of this Publication, which, it is suggested, the Division personnel will find very interesting reading. In cases where it is not possible to supply every one at a given station with a copy it will be appreciated if such copies as are sent will be made available to others who may not be so fortunate as to receive one directly.

Every crops man should be interested in the soil as the medium on which his crop is grown. The information presented in this Publication is developed primarily from the standpoint of plant and climatic factors in relation to soil genesis, and it also gives the basis of soil classification and the location of the great soil areas in the United States.

M. A. M.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

VIRGINIA

ARLINGTON EXPERIMENT FARM, ROSSLYN (Small Grain Agronomy, J. W. Taylor) (April 13)

The winter of 1935-36 was severe on the small grains at the Arlington Experiment Farm. From December 22 to 26 a cold spell, accompanied by high winds, caused severe killing and injury to both oats and barley. There was slight snow protection. The low of this cold spell was but 5° F. January was comparatively mild, as the lowest temperature recorded was 2°. In February lows of 0°, -5°, and -6° occurred, but they apparently caused less injury than the cold period in December. Fulghum (C.I. 708) was entirely winter-killed, while the more hardy types survived with a 75 percent average stand. Winter wheat was but slightly injured.

On the "flats", injury from low temperatures and wind was much more severe. Here the more hardy winter oats were at least 75 percent winter-killed and the less hardy winter barleys 50 percent killed.

During the period from March 18 to 21 the Potomac River reached a flood stage unequalled since experiments were begun at the Arlington farm, and the small grain plots and nurseries on the flats were submerged for 42 to 72 hours. Spring growth had started, but apparently loss of plants from submerging was slight. Loss from silt deposits was severe, however, as almost 50 percent of the area used for small grains had an inch or more of deposit.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, (L. J. Garot) (April 22)

So far there has been no sign of crown rust on the oats in the nursery or on volunteer oats. Dr. Tullis, who was here on April 13, was also, unable to find any.

Both on the Station experiments and in commercial fields oats are exceedingly short for this time of the year. Several fields of oats are heading and the plants are only about 14 inches tall. Several varieties in the field plots and in the nursery are heading. It may be that the shortness of growth is the result of the dry fall and the lack of rain since January 1. There is a deficiency in rainfall of more than 13 inches for the period from January 1 to the present writing. A precipitation of 0.37 inch was recorded last night, which should be of some help.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) [April 15]

Weather conditions for the first half of April have been unfavorable for most crops. Two rather severe "northers" on the 3rd and 6th, with temperatures of 25° and 26°, respectively, caused serious damage to corn, gardens, and fruit crops in this section. The leaves of small grains were frosted but the plants were not seriously damaged. The strong, drying winds, which started in March, have continued and as there has been no precipitation so far this month, fall sown grains are seriously in need of additional moisture.

First head notes were recorded on March 14 for Early Blackhull wheat, Frazier and Fulghum oats, and a number of winter barley varieties. This is from 5 to 10 days earlier than usual. Because of the stage of growth at this time, the lack of moisture is especially serious and if rain does not come soon, the yields of fall oats and barley will be very low.

Owing to unfavorable weather conditions only a trace of leaf rust has appeared so far, which is very unusual in this area.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (April 17)

In spite of two rather good showers the weather continues dry. There has been no appreciable rain since January 6. Soil moisture samples show an approximate average of 5 to 6 percent of moisture in the first four feet of soil.

The September 15 and the October 1 and 15 dates of seeding in the rate-and-date-of-seeding experiment are badly burned on fallowed land as well as on cropped land. The later seedings are not yet showing serious burning. All of the varietal plots oncropped land are badly spotted owing to drought, although the varieties on fallowed land are holding up very well. Only occasional burned areas are showing. Nursery material, with the exception of a few varieties, is not suffering severely, though it is evident that the rate of growth has been greatly retarded. The earliest varieties will be first headed at least a week later than in 1935.

The precipitation for the first half of April totaled 0.11 inch. So far this year the precipitation for the State is reported to be the lowest in more than 45 years. The maximum temperature was 95° on April 14 and the minimum, 15° on April 1.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (April 22)

After a prolonged cold spell of nearly 60 days, which made the winter of 1935-36 one of the coldest on record in Kansas, the weather finally moderated late in February. March was mild until the last week of the month, when temperatures again dropped to points below 20° F. on several occasions. The first three months of 1936 were exceedingly dry throughout the State with precipitation totals of only 0.24 inch in the eastern third of the State, 0.06 inch in the middle third, and 0.11 inch in the western third. At Manhattan the drought continued until April 20, when 0.75 inch of rain fell.

Winter wheat in the vicinity of Manhattan came through the winter in good condition although having considerably less top growth than usual. In the eastern half of the State the crop is in fair to good condition, while elsewhere it is variable, depending on local conditions. The April 1 estimated yield for the State was approximately 130 million bushels, which seems to be too high considering the present condition of the crop.

Leaf rust on volunteer wheat near the rust nursery persisted until late in February but disappeared during the dry weather of March. No natural infection could be found on either volunteer or sown winter wheat near Manhattan today. Rusted seedlings from the greenhouse have been placed in the nursery every few days since April 3 but no infection has so far resulted from that method of starting infection centers. Hand inoculations, followed by the use of moist chambers, and hypodermic inoculations of leaf rust have resulted in satisfactory infections and several infection centers so initiated are developing nicely. It is still too cool and dry for the rapid development of rust, however.

Heavy freezes during the first week in April seriously injured early-sown oats in the vicinity of Manhattan, but late sowings are in good condition. Spring wheats in the rust nursery also were badly injured by the freeze, although there is satisfactory evidence of varietal differences for frost injury.

Greenhouse work for this year is rapidly nearing completion. F_1 and parental plants are ripening and rust culture work is about completed. Electric lights installed in the greenhouse in February materially hastened heading of hybrid and parental plants. As a result, greenhouse work will be completed about a month earlier than usual.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (April 20)

After a month of comparatively warm weather the first week of April was very cold. Temperatures at Lincoln were well below freezing on several nights, the lowest being 8° on April 3. Since that time there has been considerable fluctuation in temperature but no moisture of any consequence. In spite of this, wheat is making a growth that is about normal.

During the week of April 6 a trip was made to the western part of Nebraska. At North Platte, differential winter-killing had occurred but owing to dry weather recovery has been slow and growth is very light. At Alliance, the winter-wheat nursery was completely winter-killed, while the field plots had not yet emerged. At Valentine, the field plots were just starting to come up. At both stations the winter-wheat work was recorded as a total failure.

On April 8 and 9 some moisture fell in western Nebraska. This will be of great benefit to spring crops and should aid surviving winter wheat in becoming established. On farms in western Nebraska very little winter wheat was observed and in most cases where there was wheat it was badly killed. Several fields were observed where pasturing had been very heavy. In eastern Nebraska the crop is making a fairly good growth at this time.

Oat and barley nurseries were seeded at North Platte on April 8.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (April 16)

No temperatures above freezing were recorded during the first week in April. During the past week warm temperatures have prevailed, accompanied by rapid thawing of the ground. The maximum temperature during the first half of April was 75° on the 13th and the minimum 0° on the 6th. Only a trace of precipitation was recorded during this period.

Land has been prepared for the wheat, oats, and barley plots.

The winter-wheat winter hardiness nursery has shown no sign of life to date.

The flax F_1 hybrids in the greenhouse have set a good crop of bolls and some of the bolls are already fully ripe.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (April 17)

Seeding began yesterday at the Substation with the seeding of wheat plots in the rotation experiments and nursery seeding of the uniform smut nursery and 500 rows of the hybrid smut nursery. Conditions are fairly satisfactory except that moisture is needed to insure the prompt germination of seed.

Winter wheat, which was sown last fall and which failed to germinate then due to the dry fall, is now germinating and should emerge soon if the present warm weather continues.

Seeding is beginning in this district and will become general in a few days.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 May 10, 1936 No. 6

Personnel (April 26-May 10) and Field Station (April 16-30)

PERSONNEL ITEMS

Messrs. B. B. Bayles and J. W. Taylor left on May 5 for a trip in the soft red winter wheat area of Ohio, Indiana, and Illinois to study the problem of winter-killing. Mr. Taylor will return to Washington about May 15, while Mr. Bayles will go on to Arizona and other western States to study varieties and hybrids in cooperative breeding nurseries, to inspect cooperative wheat experiments, and to observe crop conditions in general.

Dr. K. H. Klages, who was appointed in March as head of the department of agronomy at the Idaho Agricultural Experiment Station, Moscow, Idaho, has been succeeded at the South Dakota Agricultural Experiment Station by Mr. S. P. Swenson, who will continue the cereal experiments.

Mr. H. H. McKinney returned on May 2 from an 11-day trip in Illinois and Indiana in the interests of wheat mosaic. He was accompanied by Dr. Benjamin Koehler, of the Illinois Agricultural Experiment Station, on a survey in Illinois. Data were taken on cooperative experiment plots in Mason and Tazewell counties, Illinois. In the Indiana survey Mr. McKinney was accompanied by Dr. Ralph M. Caldwell.

Mr. L. P. Reitz, who for several years has conducted the cooperative cereal investigations at the Montana Agricultural Experiment Station, Bozeman, Mont., has been appointed in the Division of Forage Crops and Diseases, and Mr. William B. Nelson has been appointed by the State to continue the cooperative cereal investigations at Bozeman.

Mr. Joe L. Sutherland, formerly in charge of cooperative cereal agronomy at the Judith Basin Branch Station, Moccasin, Mont., was transferred on April 16 to the Division of Dry Land Agriculture and made superintendent of the Station. Mr. Edward C. Coey was appointed agent in the Division of Cereal Crops and Diseases, effective May 1, to continue the cooperative cereal agronomy work at Moccasin.

RECENT PUBLICATIONS

Thatcher Wheat. H. K. Hayes, E. R. Ausemus, E. C. Stakman, C. H. Bailey, H. K. Wilson, R. H. Bamberg, M. C. Markley, R. F. Crim, and M. N. Levine. Minn. Agr. Expt. Sta. Bull. 325, 39 pp., 9 figs. January 1936. (Cooperative investigations of the Minnesota Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Genetic Effects of Ultra-Violet Radiations in Maize. L. J. Stadler and G. F. Sprague. Amer. Nat. 70: 69. Jan.-Feb. 1936. [Abstract ?] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

Report of the Eastern Winter Hardiness Wheat Nurseries 1934-35. J. W. Taylor and S. C. Salmon. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 5 pp. March 24, 1936. [Mimeographed.]

Reaction of the Victoria Oat Variety to Crown Rust. H. C. Murphy. (Note) Phytopathology 26(4): 396-397. April 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

New Small Grain Varieties for Northern Arizona. A. T. Bartel. Ariz. Producer 15(3): 14-15. April 15, 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding. E. R. Ausemus) (May 2)

The weather during the winter of 1935-36 was unusually severe. Mean temperatures in January and February were much lower than normal. The precipitation for the period from October 1 to April 30 was 13.83 inches as compared with a normal of 9.83 inches. April has been cold and wet.

Seeding of spring sown grains has been delayed. Seeding in the drier parts of the State has progressed and is partly completed. At University Farm, the field plots have not been seeded and only a part of the nursery seedings have been completed.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (April 30)

Owing to the abundant subsoil moisture stored during the fall of 1935, small grains have been able to continue growth fairly well. Fall sown wheat, oats, and barley were well rooted and have been able to draw on the subsoil moisture to continue growth. This has been very evident in the severe cracking of the heavy black land soil in small-grain nursery alleys and between plots of grain. Cracks between plots are from 2 to 8 inches wide and wheat roots are visible in such cracks down to a depth of 4 to 5 feet. The cracks in many instances extend much deeper. Spring-sown oats and barley have been more seriously injured by the lack of moisture than fall-sown grains. All spring grains will be very short and there is doubt as to the possibility of harvesting some fields because of the short straw.

At this writing, most of the winter wheat varieties are heading. Fall oats and barley are headed and barley will soon start ripening. Fall-sown grain is about a week to 10 days earlier than usual. Owing to the dry weather practically no leaf rust has appeared. As a result, the hard winter wheats, which normally are injured more by rust, look unusually promising.

Dry, windy weather continued throughout the month of April. Only 0.60 inch of precipitation was recorded compared with the expected normal of 3.69 inches. The deficiency of precipitation since January 1 is -6.52 inches. A rain of 1.03 inches in March is the only one of practical importance. All other precipitation has occurred as showers of less than 0.50 inch and of only temporary value. The mean temperature for April was 47.9° which is very close to normal. The last killing frost of the year occurred on April 7, almost a month later than normal. This caused important losses in the State to fruit crops, gardens, and corn. The wind movement for April averaged 9.2 miles per hour, which is unusually high.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (May 2)

Early varieties and strains of winter wheat and barley are heading rapidly. Early Blackhull wheat was first headed on April 25.

A rain of 0.44 inch on April 26 (the first of any importance since January 5) is tiding over the varietal plots and nursery material for the present. Some green growth has started in the badly burned, early seeded plots of a rate-and-date-of-seeding experiment.

The maximum temperature in April was 95° on April 14 and the minimum 15° on April 1. The mean temperature was 59°. The precipitation amounted to 0.60 inch. The total rainfall for the first four months of 1936 was 1.15 inches, or 4.03 inches less than the average for the period from 1914 to 1935.

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (April 30)

The 4-month period from January to April has been one of the driest on record for this time of the year. The rainfall recorded for this period is 1.26 inches. On well-cultivated fields a good supply of subsoil moisture is still available, but winter wheat will soon need additional rain, as the heading period is only two weeks away. Wheat has made vigorous growth during the last two weeks. In this section temperatures from the middle of January to as late as April 10 were unusually low. A temperature of 6° was recorded on April 6. Even so, no winter-killing of wheat occurred on the Cereal Project except on a few pastured plots.

There has been some soil blowing throughout the territory and abandoned fields may be found. In most cases such abandonment seems to have been caused from drifting soil from uncontrolled fields.

Stands of oats and barley were difficult to obtain because the surface soil was dry even though moisture was available in the subsoil. A light shower in the early part of April was just sufficient to bring about almost full germination.

The Twenty-Fourth Annual Cattlemen's Round-Up was held on April 25 with one of the largest attendance on record. Attendance of high school and 4-H Club boys and girls reached a high mark in the livestock, grain, and clothing judging contests held on April 24.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (May 1)

Winter wheat has made a good recovery the latter half of April. All plots have from fair to good stands. The nursery shows differential killing for the first time in three years. The less winter hardy varieties show quite low survival.

Spring wheat, barley, and oats have emerged to good stands and are making satisfactory growth. A large acreage of barley has been seeded in this region.

There has been very little soil blowing in this region and none on the Station.

Dr. Hurley Fellows, of Manhattan, Kans., arrived on April 29 and will spend a few weeks here studying dry land footrot.

The precipitation in April was 2.08 inches as compared to a normal of 2.22 inches. For the first four months of this year we are 0.66 inch below normal. The maximum temperature for April was 84° on the 23rd and the minimum -4° on the 1st.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (May 1)

During the last few days of April some much needed moisture fell at Lincoln and rather generally throughout the State. The precipitation at Lincoln came as a light rain on April 25 and 26 giving about a third of an inch, and on April 28 there were two downpours that gave a total of 1.76 inches. With this last rain there was some hail which did considerable damage to roofs and glass northeast of the city. Considerable washing occurred on the more rolling fields that had just been prepared or seeded. Last night another gentle rain of 0.37 inch was recorded. Winter wheat, which was suffering from lack of moisture, will be greatly benefited by these rains.

On April 23 and 24 Dr. S. C. Salmon visited Lincoln and looked over the wheat work.

Dr. E. C. Auchter made a short visit to the Campus on April 28. He spoke to the Agronomy Seminar and visited with State and Bureau workers.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (May 1)

The wheat, oat, and barley varietal plots were sown April 17. Seeding of the Regional, Intrastate, and local 9-row, 3-row, and single rod-row wheat nurseries was completed April 18 except for 212 single rod rows of which seed had not yet been received. Seeding of increase plots and head selections received previously was completed April 23. Seed of rod rows and head selections just received is being seeded today.

First emergence of wheat, oat, and barley in varietal plots was noted today but complete emergence is not expected until about a week following the rain of April 30.

The winter wheat in the winter-hardiness nursery has shown no indication of survival or spring emergence to date. If there is no emergence within the next few days the land will be sown to spring wheat.

The weather of the last half of April was ideal for field work. There was no effective precipitation until April 30. The surface soil was dry but there was sufficient moisture two or three inches below the surface for slow germination of seed. On April 29 and 30 rain amounting to 0.45 inch provided sufficient moisture for complete germination of all seed sown to date. The maximum temperature was 80° on the 19th and the minimum 14° on the 20th. The precipitation was 0.48 inch for the last half of April.

Mr. Fuat Halis, of the Turkish Department of Agriculture, visited the Station on April 7. Mr. A. C. Dillman stopped at Mandan April 29 and 30 on his return trip from the Southwest.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 4)

Low temperatures have prevailed the greater part of April. Changes in temperature have been frequent and the extremes for the month have varied from 4° below zero to 80° above. In general the month has been dry with a total of 0.50 inch of precipitation.

Early seeded grain is emerging a few days later than usual. More rain is needed to insure uniform emergence. Seeding is well along at the Substation as well as in the vicinity.

The seeding of the cereal nursery is practically completed, while in the field plots varieties of flax, corn, and proso remain to be seeded.

Winter survival in field plots of winter wheat is low and in the nursery it is extremely low, due, perhaps, to germination during warm weather in the middle of March and subsequent injury from below zero weather in the first week of April.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, E. C. Coey) (May 4)

All of the winter wheat nursery and most of the plot experiments have been winter-killed. The plots that survived the winter might give some interesting and valuable information on varietal hardiness and the type of drill best suited for seeding winter wheat.

The weather in April was cold and wet, the precipitation of 1.43 inches being partly in the form of snow. This is 0.25 inch more than the average for the last 26 years. The maximum temperature was 77° on April 18 and the minimum -18° on April 1. The weather permitted nearly all spring seeding to be done in April.

Recent visitors at the Station included Director F. B. Linfield and Prof. F. M. Harrington, of the Montana Station, Bozeman. Mr. Sam L. Sloan, agronomist of the Soil Conservation Service, headquartered at Great Falls, inspected crested wheat grass pastures at the Station last week.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (May 4)

Prospects for a good crop of winter wheat are much poorer than they were a month ago. The snow stayed on the ground too long in the early spring and, upon melting, leached nitrates from the surface soil. Yellow spots have appeared in wheat fields and many plants are deficient in chlorophyll. Spring-sown crops continue to appear healthy and probably will produce greater yields than those sown in the fall.

The weather in April was unusually warm for this time of year, the temperature reaching a maximum of 70° or more on 12 days. There has been no frost since April 6. The rainfall for April was only 0.65 inch and more moisture is needed.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (May 1)

April has been an exceptionally favorable month for seeding and for plant growth. Although part of the nursery was seeded on March 20 and 21, heavy snow storms followed. The snow disappeared April 9 and the remainder of the small grains were seeded April 11. Emergence of the nursery varied only four days in the March and April seedings. Following April 11, there has been unusually warm weather, with no frosts. Maximum temperatures often exceeded 80°, with a mean for the month of 50° as compared to a 6-year mean of 47°. The lowest temperature for the month was 0°, recorded April 4. The precipitation for April totaled 1.64 inches as compared to 2.26 inches for a 16-year mean. Crops began to suffer for lack of moisture the last week of April. On April 29 and 30 a precipitation of 0.97 inch met the immediate moisture needs at the Station.

Winter wheat is growing very slowly and shows poor stands in many sections. Spring grain is from 3 to 4 inches high. Corn planting will commence this week if weather conditions are favorable.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (April 30)

A series of frosts during the last week of March and the first days of April (minimum temperature of 28°) produced what is probably the most severe damage of its kind ever observed in cereals at University Farm. Very early varieties, which had flowered before the frosts, were not seriously damaged. Varieties in process of heading or very soon to head were those damaged most. Some very marked differences in the resistance of varieties at this critical stage have been noted. In plot tests, Pusa wheat and Manchuria barley were damaged most, causing 40 percent sterility. Certain nursery strains have been judged as 90 percent sterile. New tillers that are now beginning to head have developed on damaged plants. Most commercial fields escaped serious damage.

The precipitation is just a fraction above normal for the season since July 1. Barley is beginning to lodge badly, but other cereals are still erect. Leaf rust is abundant and stem rust is becoming so.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 7

May 25, 1936

Personnel (May 11-25) and Field Station (May 1-15)

PERSONNEL ITEMS

Mr. J. W. Taylor and Dr. M. N. Pope returned on May 21 from a short trip in Virginia, West Virginia, and Maryland to inspect and take notes on cooperative barley nurseries. In general, the barley at all stations in Virginia came through the winter in unusually good condition. The most serious disease affecting winter barley throughout Virginia is mildew. In farmers' fields, especially of the hooded type of barley, stripe of barley is very common. Oats were entirely winter-killed at Staunton and severely injured both at Blacksburg and Glade Spring.

RECENT PUBLICATIONS

Hybrid Selections of Oats Resistant to Smuts and Rusts. H. C. Murphy, T. R. Stanton, and F. A. Coffman. Jour. Amer. Soc. Agron. 28(5): 370-373, fig. 1. May 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

Flax Seed-Treatment Tests. H. H. Flor. Phytopathology 26(5): 429-438. May 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

Black Chaff Disease of Wheat. R. H. Bamberg. Jour. Agr. Research 52(6): 397-417. March 15, 1936. (G-1001) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS

DIVISION OF CEREAL CROPS AND DISEASES

Calender Year 1935

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In the calendar year 1935, 115 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural experiment stations, in private journals, or as mimeographed unnumbered publications of the Division. In the same year 127 manuscripts were submitted for publication. There remain as of December 31, 1935, 58 manuscripts submitted in 1935 and 5 submitted in 1934.

GENERAL OR MISCELLANEOUS

Allen, Ruth F. A Cytological Study of Puccinia malvacearum from the Sporidium to the Teliospore. Jour. Agr. Research 51(9): 801-818, pls. 1-9. November 1, 1935. (G-980) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Agricultural Experiment Station, University of California.)

Deming, W. Edwards, and Colcord, Clarence C. The Minimum in the Gamma Function. Nature 135: 917. June 1, 1935.

Humphrey, Harry B. Cereal Disease Forecasting. World's Grain Exhib. and Conf. Regina, Canada, 1933, Proc. 2:214-219. 1935.

_____ and Coffman, F. A. A Portable Rust-Inoculation Chamber. (Note) Phytopathology 25(2): 279-281, figs. 1-2. February 1935.

_____ Stakman, E. C., Mains, E. B., Johnston, C. O., Murphy, H. C., and Bever, Wayne M. The Rusts of Cereal Crops. U. S. Dept. Agr. Circ. 341, 27 pp., 10 figs. February 1935.

_____ and Wood, Jessie I. Diseases of Plants in the United States in 1933. U. S. Dept. Agr., Bur. Plant Indus. Plant Disease Bull. Sup. 86: 1-107, illus. January 15, 1935. [Mimeographed.]

Hurd-Karrer, Annie M. Factors Affecting the Absorption of Selenium from Soils by Plants. Jour. Agr. Research 50(5): 413-427, figs. 1-4. March 1, 1935. (G-959)

Kephart, L. W. Quackgrass. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 2 pp. July 17, 1935. [Mimeographed.]

McKinney, H. H. The Antigenic Properties of Plant Viruses. Science (n. s.) 82(2125): 276-277. September 20, 1935.

McKinney, H. H. The Inhibiting Influence of a Virus on One of Its Mutants. Science (n. s.) 82(2133): 463-464. November 15, 1935.

_____ Evidence of Virus Mutation in the Common Mosaic of Tobacco. Jour. Agr. Research 51(11): 951-981, figs. 1-4. December 1, 1935. (G-989)

Parker, John H. Insect Resistance in Crop Plants. Northwest. Miller 183 (9): 805-806, illus. Sept. 18, 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the agronomy department of the Kansas Agricultural Experiment Station.)

Pope, Merritt N. A Bath for Orienting Objects in Paraffin. Science (n. s.) 82(2128): 356. Oct. 11, 1935.

Randolph, L. F. A New Fixing Fluid and a Revised Schedule for the Paraffin Method in Plant Cytology. Stain Tech. 10(3): 95-96. July 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the department of botany of the New York State College of Agriculture, Cornell University.

Salmon, S. C. Seed Situation in the Great Plains. Seed World 37(1): 7-9. Jan. 4, 1935.

Shear, C. L., and Stevens, N. E. Key to Symbols Used by Berkeley and Curtis in Their Copies of Schweinitz' "Synopsis fungorum in American Boreali." (Note) Mycologia 27: 224-225. March/April 1935.

Sprague, Roderick. Wojnowicia Graminis as a Very Weak, Secondary Parasite of Winter Cereal Crops. Phytopathology 25(4): 405-415, figs. 1-2. April 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Oregon and Washington agricultural experiment stations with field headquarters at Corvallis, Oreg.)

_____ Ascochyta boltshauseri on Beans in Oregon. Phytopathology 25(4): 416-420. April 1935.

_____ A Preliminary Check List of the Parasitic fungi on Cereals and Other Grasses in Oregon. U. S. Dept. Agr., Bur. Plant Indus. Plant Disease Reptr. 19(11): [156]-186. July 15, 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture, and the Oregon Agricultural Experiment Station.)

Woodward, R. W., and Tingey, D. C. Relative Production of Feed Grain from Spring-Grown Cereals in Utah. Utah Agr. Expt. Sta. Bull. 263, 12 pp., 1 fig. November 1935. (Cooperative investigations between the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

BARLEY

Coleman, D. A., Christie, Alfred, and Bode, C. E. Survey of Protein Content and Other Grading Data of the 1935 Barley Crop of the Midwestern and Pacific Coast States. A Preliminary Report. U. S. Dept. Agr., Bur. Agr. Econ., Grain Div. [Unnumbered Pub.] 39 pp. November 1935. [Mimeographed.]

_____ and Snider, S. R. The Determination of Moisture in Barley Malt. A Comparison of Methods and Apparatus for This Purpose. Cereal Chem. 12(6): 621-645, 4 figs. November 1935. (Cooperation between the Grain Division, Bureau of Agricultural Economics, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

Dickson, James G., Shands, H. L., Dickson, Allan D., and Burkhart, B. A. Barley and Malt Studies: I. Developing New Varieties of Barley for Malting and Their Properties. Cereal Chem. 12(6): 596-609, figs. 1-8. November 1935. (Based on co-operative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture, and the Wisconsin Agricultural Experiment Station.)

Harlan, H. V., Cowan, P. Russell, and Reinbach, Lucille. Yields of Barley in the United States and Canada 1927-31. U. S. Dept. Agr. Tech. Bull. 446, 80 pp. March 1935.

_____ and Martini, Mary L. The Lateral Flowers of Two-Rowed Barley. Jour. Heredity 26(3): 109-113, figs. 4-5. March 1935. (These studies were made on the Aberdeen Substation, Aberdeen, Idaho, in connection with cereal experiments conducted cooperatively by the Idaho Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture.)

Pope, Merritt N. Fifteen Years of Selection in Six Varieties of Barley. Jour. Amer. Soc. Agron. 27(2): 142-148, figs. 1-2. February 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

_____ The Production of Barley Seed through Post-Harvest Pollination. Jour. Heredity 26(10): 411-413, figs. 11-12. October 1935.

Tapke, V. F. A Study of the Cause of Variability in Response of Barley Loose Smut to Control through Seed Treatment with Surface Disinfectants. Jour. Agr. Research 51(6): 491-508, pl. 1, fig. 1. Sept. 15, 1935. (G-976)

_____ An Effective and Easily Applied Method of Inoculating Seed Barley with Covered Smut. (Phytopath. Note) Phytopathology 25(11): 1038-1039. November 1935.

Woodward, R. W., and Tingey, D. C. Barley Varietal Tests in Utah. Utah Agr. Expt. Sta. Bull. 261, 12 pp., 1 fig. November 1935. (Co-operation between the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

CORN

Dungan, G. H., Holbert, J. R., Mumm, W. J., Bigger, J. H., and Lang, A. L. Illinois Corn Performance Tests. Results for 1934. Ill. Agr. Expt. Sta. Bull. 411, pp. 55-88, figs. 1-4. February 1935. (In cooperation with the Division of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture, and the Illinois State Natural History Survey.)

Elliott, Charlotte, Bacterial Wilt of Corn Combated by Use of Resistant Strains. U. S. Dept. Agr. Yearbook 1935: 126-129, figs. 2-3. 1935. (Sep. 1503)

_____ Dissemination of Bacterial Wilt of Corn. Iowa State Coll. Jour. Sci. 9(3): 461-480, pls. 1-4. April 1935.

Holbert, J. R., Flint, W. P., Bigger, J. H., and Dungan, G. H. Resistance and Susceptibility of Corn Strains to Second Brood Chinch Bugs. Iowa State Coll. Jour. Sci. 9(3): [413]-426, pls. 1-4, fig. 1. April 1935. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Illinois State Natural History Survey and the Illinois Agricultural Experiment Station.)

_____ Hoppe, P. E., and Smith, A. L. Some Factors Affecting Infection with and Spread of Diplodia zeae in the Host Tissue. (Phytopath. Note) Phytopathology 25(12): 1113-1114, fig. 1. December 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Illinois and Wisconsin agricultural experiment stations.)

Jenkins, Merle T. The Effect of Inbreeding and of Selection within Inbred Lines of Maize upon the Hybrids Made After Successive Generations of Selfing. Iowa State Coll. Jour. Sci. 9(3): [429]-450, figs. 1-4. April 1935. (Cooperation between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Farm Crops Subsection, Iowa Agricultural Experiment Station.)

Johann, Helen. Histology of the Caryopsis of Yellow Dent Corn, with Reference to Resistance and Susceptibility to Kernel Rots. Jour. Agr. Research 51(10): 855-883, figs. 1-19. November 15, 1935. (G-973) (Cooperative investigations by the Bureau of Plant Industry, U. S. Department of Agriculture, and the Wisconsin Agricultural Experiment Station.)

Mackie, W. W., Johann, Helen, and Stevens, N. E. An Unidentified Species of Sphaeropsis on Maize in California. (Abstract) Phytopathology 25(9): 893. September 1935.

Morris, V. H., and Sayre, J. D. Solubility of Potassium in Corn Tissues. Plant Physiol. 10(3): 565-568. July 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the agronomy department of the Ohio Agricultural Experiment Station.)

Painter, R. H., Snelling, R. O., and Brunson, A. M. Hybrid Vigor and Other Factors in Relation to Chinch Bug Resistance in Corn. Jour. Econ. Ent. 28: 1025-1030. December 1935. (Cooperative investigations between the Kansas Agricultural Experiment Station and the Divisions of Cereal Crops and Diseases and Dry Land Agriculture, Bureau of Plant Industry.)

Poos, F. W., and Elliott, Charlotte. Bacterial Wilt of Corn and Its Insect Vectors. (Abstract) Phytopathology 25(1): 32. January 1935. (Cooperation between the Bureau of Entomology and Plant Quarantine and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

Randolph, L. F. Cytogenetics of Tetraploid Maize. Jour. Agr. Research 50(7): 591-605, figs. 1-10. April 1, 1935. (G-953) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Department of Botany, New York State College of Agriculture, Cornell University.)

Richey, Frederick D. The What and How of Hybrid Corn. U. S. Dept. Agr. Farmers' Bull. 1744, 14 pp., 5 figs. January 1935.

Robinson, Joe L., and Bryan, A. A. Iowa Corn Yield Test, Results of 1934. Iowa Corn and Small Grain Growers' Assoc. Rept. No. 15, 30 pp., illus. February, 1935. (Cooperation between the Iowa Corn and Small Grain Growers' Association and the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Shear, C. L., and Stevens, N. E. Sphaeria zeae (Diplodia zeae) and Confused Species. Mycologia 27(5): 467-477, illus. Sept.-Oct. 1935.

Smith, Glenn M. Golden Cross Bantam Sweet Corn. Canning Age 16(4): 171-173. March 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

_____ Hybrid Sweet Corn. Canning Age 16: 243-245, illus. May 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

_____ Incidence of Bacterial Wilt in Experimental Plantings of Sweet Corn at Lafayette, Indiana, in 1934. U. S. Dept. Agr., Bur. Plant Indus. Plant Disease Reptr. 19(12): 204-209. Aug. 1, 1935.

Sprague, George F. Random Sampling and the Distribution of Phenotypes on Ears of Backcrossed Maize. Jour. Agr. Research 51(8): 751-758, figs. 1-4. October 15, 1935. (G-985)

Stadler, L. J. Loss Mutations in Maize. Iowa State Coll. Jour. Sci. 9(3): [427]. April 1935. (Cooperation between the Division of Cereal Crops and Diseases, Bureau Plant Industry, and the Department of Field Crops, University of Missouri.)

Stevens, N. E. Incidence of Bacterial Wilt of Corn in the Eastern United States in 1935. U. S. Dept. Agr. Plant Dis. Reptr. 19(18): 286-288. November 1, 1935.

_____ and Wood, Jessie I. Losses from Corn Ear Rots in the United States. (Phytopath. Note) Phytopathology 25(2): 281-283, fig. 1. February 1935.

Stringfield, G. H. A Report on Field Experiments with Corn Hybrids and Open-Pollinated Varieties in Ohio, 1934. Ohio Agricultural Experiment Station Mimeographed Rept. No. 31, 29 pp. [1935]. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

FLAX

Dillman, A. C., and Stoa, T. E. Flaxseed Production in the North Central States. U. S. Dept. Agr. Farmers' Bull. 1747, 18 pp., 11 figs. September 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

Flor, H. H. Physiologic Specialization of Melampsora lini on Linum usitatissimum. Jour. Agr. Research 51(9): 819-837, pl. 1. November 1, 1935. (G-983) (Cooperative investigations between the North Dakota Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

OATS

Coffman, F. A. Results from the Cooperative Coordinated Oat Breeding and Uniform Winter-Hardiness Nurseries in the United States 1923-1934. U. S. Dept. Agr., Bur. Plant Indus., Division of Cereal Crops and Diseases [Unnumbered Pub.] 74 pp. May 8, 1935.

_____ A Simple Method of Threshing Single Oat Panicles. (Note) Jour. Amer. Soc. Agron. 27(6): 498. June 1935.

Murphy, H. C. Physiologic Specialization in Puccinia coronata avenae. U. S. Dept. Agr. Tech. Bull. 433, 48 pp. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station.)

_____ Effect of Crown Rust on the Cold Resistance of Oats. (Abstract) Phytopathology 25(1): 28. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the botany and plant pathology sections of the Iowa Agricultural Experiment Station.)

_____ Effect of Crown Rust on Yield, Water Economy, and Composition of Oats. (Abstract) Phytopathology 25(1): 28-29. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the botany and plant pathology sections of the Iowa Agricultural Experiment Station.)

_____ Effect of Crown Rust Infection on Yield and Water Requirement of Oats. Jour. Agr. Research 50(5): 387-411, figs. 1-10. March 1, 1935. (G-957) (Cooperative investigations of the Division of Cereal Crops and Diseases and the botany and plant pathology sections of the Iowa Agricultural Experiment Station.)

Sprague, Roderick. A New Leaf Spot of Oats. Northwest Science 9(3): 15. September 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Oregon and Washington agricultural experiment stations.)

Stanton, T. R. Registration of Varieties and Strains of Oats, VI. Jour. Amer. Soc. Agron. 27(1): 66-70. January 1935.

_____ Registration of Varieties and Strains of Oats, VII. Jour. Amer. Soc. Agron. 27(12): 1001-1002. December 1935.

Woodward, R. W., and Tingey, D. C. Oat Varietal Tests in Utah. Utah Agr. Expt. Sta. Bull. 260, 14 pp., 1 fig. November 1935. (Cooperation between the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

RICE

Beachell, H. M. Better Rice by Breeding. Rice News 2(8): 24-25. June 1935.

Cralley, E. M., and Tullis, E. C. A Comparison of Leptosphaeria salvinii and Helminthosporium sigmoideum irregulare. Jour. Agr. Research 51(4): 341-348, figs. 1-4. Aug. 15, 1935. (Ark.-21) (A joint contribution from the Department of Plant Pathology, Arkansas Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

Davis, Loren L., and Jones, Jenkin W. The Calady Rice Variety. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 2 pp. Jan. 21, 1935.

Jenkins, J. Mitchell. Report of the Rice Experiment Station, Crowley, Louisiana, for the Years 1933-1934: In Bien. Rept. Rice Expt. Sta., Crowley, La., 1933-1934:[5]-15. [1935] (Cooperation between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Jodon, N. E. Improving Rice Varieties. In Bien. Rept. Rice Expt. Sta., Crowley, La., 1933-1934: 15-18. 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

Jones, Jenkin W. Rice When Treated for Milling Acquires Desirable Qualities. U. S. Dept. Agr. Yearbook 1935: 126-129, figs. 2-3. 1935. (Sep. 1509)

_____ Adair, C. Roy, Beachell, H. M., and Davis, Loren L. Inheritance of Earliness and Length of Kernel in Rice. Jour. Amer. Soc. Agron. 27(11): 910-921. November 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arkansas, Texas, and California agricultural experiment stations.)

_____ and Taylor, J. W. Effect of Parboiling Rough Rice on Milling Quality. U. S. Dept. Agr. Circ. 340, 15 pp., 6 figs. February 1935.

Tullis, E. C. Rice Diseases. In Bien. Rept. Rice Expt. Sta., Crowley, La., 1933-1934: 19-20. 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

_____ Histological Studies of Rice Leaves Infected with Helminthosporium oryzae. Jour. Agr. Research 50(1): 81-90, figs. 1-6. Jan. 1, 1935. (G-948) (Investigations conducted in cooperation with the Arkansas, Louisiana, and Texas agricultural experiment stations.)

SORGHUMS AND BROOMCORN

Bartel, A. T., Martin, J. H., and Hawkins, R. S. Effect of Tillers on the Development of Grain Sorghums. Jour. Amer. Soc. Agron. 27(9): 707-714, figs. 1-4. September 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

Martin, J. H., Taylor, J. W., and Leukel, R. W. Effect of Soil Temperature and Depth of Planting on the Emergence and Development of Sorghum Seedlings in the Greenhouse. Jour. Amer. Soc. Agron. 27(8): 660-665, fig. 1. August 1935.

Swenson, A. F. The Development of Sorghum Culture in Kansas. Kans. State Bd. Agr. Biem. Rept. (1933-34) 29: 165-174, figs. 30-34. 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

WHEAT

Bartel, A. T., and Hobart, Charles. Irrigation Experiments with Wheat. Ariz. Agr. Expt. Sta. Bull. 151, pp. [353]-388, pls. 1-4, figs. 1-10. December 15, 1935. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

Bayles, B. B. Results from Cooperative Wheat Varietal Experiments in the Western Region in 1934, with Averages for 1931 to 1934. U. S. Dept, Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumber Pub.] 83 pp. February 15, 1935. [Mimeographed.]

Clark, J. Allen. Inheritance of Stem Rust and Bunt Reactions in Spring Wheat Crosses. World's GrainExhib. and Conf. Regina, Canada, 1933, Proc. 2: 37-43. 1935.

_____ Registration of Improved Wheat Varieties, VIII. Jour. Amer. Soc. Agron. 27(1): 71-75. January 1935.

_____ Results of Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1934. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 23 pp. February 20, 1935. [Mimeographed.]

_____ and Bayles, B. B. Classification of Wheat Varieties Grown in the United States. U. S. Dept. Agr. Tech. Bull. 459, 164 pp., 41 pls., 78 figs. April 1935.

_____ and Smith, Glenn S. Inheritance of Stem-Rust Reaction in Wheat, II. Jour. Amer. Soc. Agron. 27(5): 400-407. May 1935. (Cooperation between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station at the Langdon Substation, Langdon, N. Dak.)

Fifield, C. C. Types or Classes of Bread Characteristisc. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 9 pp., illus. Jan. 9, 1935. [Mimeographed.]

Hart, Helen, and Forbes, I. L. The Effect of Light on the Initiation of Rust Infection. Phytopathology 25(7): 715-725, fig. 1. July 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Minnesota Agricultural Experiment Station.)

_____ and Zaleski, Karol. The Effect of Light Intensity and Temperature on Infection of Hope Wheat by Puccinia graminis tritici. Phytopathology 25(12): 1041-1066, figs. 1-6. December 1935. (This work was started as a cooperative project of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture and the Minnesota Agricultural Experiment Station.)

Holton, C. S. Studies on Seven Differentiating Characteristis of Two Physiologic Forms of Tilletia tritici. Phytopathology 25(12): 1091-1098, figs. 1-3. December 1935. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Washington, Oregon, and Idaho agricultural experiment stations.)

Holton, C. S., Bayles, B. B., and Rodenhiser, H.A. Results from the Uniform Bunt Nurseries in the Western Region in 1935, with Averages for 1932 to 1935. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 2 pp. Oct. 15, 1935. [Mimeographed.]

Hurst, W. M., Humphries, W. R., Leukel, R. W., and Boerner, E. G. Removing Smut Balls from Seed Wheat. U. S. Dept. Agr. Circ. 361, 16 pp., 6 figs. August 1935. (Cooperative investigations of the Division of Mechanical Equipment, Bureau of Agricultural Engineering, the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Grain Division, Bureau of Agricultural Economics.)

Levine, M. N., and Stakman, E. C. Uniform Rust Nurseries Indicate Decreasing Severity of Stem Rust. (Abstract) Phytopathology 25(1): 25. January 1935. (Cooperative investigations between the Minnesota Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, and the Division of Plant Disease Control, Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture.)

McKinney, H. H. Reaction of Wheat Varieties, Selections, and Hybrids to Mosaic and Mosaic-Rosette. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 12 pp. May 24, 1935 [Mimeographed.]

_____ Occurrence of Wheat Mosaic in Indiana and Illinois in 1935. U. S. Dept. Agr. Plant Dis. Reptr. 19(18): 288-289. November 1, 1935.

_____ and Sando, W. J. Earliness of Sexual Reproduction in Wheat as Influenced by Temperature and Light in Relation to Growth Phases. Jour. Agr. Research 51(7): 621-641, figs. 1-5. Oct. 1, 1935. (G-975)

Melander, Leonard W. Effect of Temperature and Light on the Development of the Uredial Stage of Puccinia graminis. Jour. Agr. Research 50(11): 861-880, figs. 1-5. June 1, 1935. (G-967) (Cooperative investigations between the Division of Cereal Crops and Diseases and the former Division of Barberry Eradication, Bureau of Plant Industry, U. S. Dept. Agr., and the Agricultural Experiment Station of the University of Minnesota.)

Parker, J. H. Wheat Improvement in Kansas, 1874-1934, with Special Reference to Quality. Kans. State Bd. Agr. Bien. Rept. (1933-34) 29: 139-164, figs. 27-29. 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

_____ Relation of Variety Testing and Plant Breeding to Quality of Kansas Wheat. Northwest. Miller 183(6): 532-533. August 21, 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

_____ Rust Resistance Tests Made in Kansas. Northwest. Miller 184 (Prod. Ann.) (2): 63-64, illus. October 16, 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

_____ Advantages of One-Variety Wheat Community. Northwest. Miller 184(7): 579, 588. November 27, 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Quisenberry, K. S. Comparison of Winter-Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Red Winter-Wheat Region in 1934. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 58 pp. Feb. 20, 1935. [Mimeographed.]

_____ Report of the Great Plains Uniform Winter-Hardiness Nurseries of 1934-35. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 4 pp. December 23, 1935. [Mimeographed.]

Rodenhiser, H. A., and Clark, J. Allen. Summary of Uniform Spring-Wheat Bunt Nursery, 1935. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Diseases [Unnumbered Pub.] 2 pp. December 20, 1935. [Mimeographed.]

Sando, W. J. Hybrids of Wheat, Rye, Aegilops, and Haynaldia. Jour. Heredity 26(6): 229-232, figs. 3-4. June 1935.

_____ Intergeneric Hybrids of Triticum and Secale with Haynaldia villosa. Jour. Agr. Research 51(9): 759-800, pls. 1-14, figs. 1-9. November 1, 1935. (G-984)

Stakman, E. C., Hines, Lee, Cassell, Robert C., and Levine, M. N. Population Trends of Physiologic Forms of Puccinia graminis tritici, 1930 to 1934. (Abstract) Phytopathology 25(1): 34. January 1935. (Cooperative investigations between the Minnesota Agricultural Experiment Station and the Division of Plant Disease Control, Bureau of Entomology and Plant Quarantine, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

Suneson, C. A. Cheyenne Winter Wheat. Nebr. State Bd. Agr. Ann. Rept. 1934: 178-181. [1935.] (In 35th Ann. Rept. Nebr. Crop Growers' Assoc.) (Cooperation between the Division of Cereal Crops and Diseases and the Nebraska Agricultural Experiment Station.)

Swanson, A. F. Pasturing Winter Wheat in Kansas. Kans. Agr. Expt. Sta. Bull. 271, 30 pp., illus. January 1935. (Cooperation between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

Swanson, C. O., and Parker, John H. The Wheat Meal Time Fermentation Test. Northwest. Miller 184 (Prod. Ann.) (2): 14-16. October 16, 1935. (Cooperation between the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Taylor, J. W., and Quisenberry, K. S. Inheritance of Rye Crossability in Wheat Hybrids. Jour. Amer. Soc. Agron. 27(2): 149-153. February 1935.

Tingey, D. C., and Woodward, R. W. Comparative Yields of Spring Wheat Varieties in Utah. Utah Agr. Expt. Sta. Bull. 262, 12 pp., 1 fig. November 1935. (Cooperation between the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

_____ and Woodward, R. W. Relief Wheat. Utah Agr. Expt. Sta. Bull. 264, 12 pp. November 1935. (Cooperation between the Utah Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Ullstrup, Arnold J. Studies on the Variability of Pathogenicity and Cultural Characters of Gibberella saubinetii. Jour. Agr. Research 51(2): 145-162, figs. 1-8. July 15, 1935. (G-972) (Cooperative investigations by the Wisconsin Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Weaver, Ray, and Fifield, C. C. Mixing-Time Experiments with Flours Milled from Different Classes of Wheats. Cereal Chem. 12 (3): 281-288. May 1935. (Cooperation between the Grain Division, Bureau of Agricultural Economics, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

Wiebe, Gustav A. Variation and Correlation in Grain Yield among 1,500 Wheat Nursery Plots. Jour. Agr. Research 50(4): 331-357, figs. 1-7. February 15, 1935. (G-949). (This paper is based on co-operative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Idaho and California agricultural experiment stations.)

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

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LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (May 19)
Rice seeding operations on the Station were delayed by heavy rains April 27 and 28. Because of this delay it probably will be the middle of May before seeding can be completed.

Cotton and corn plots were seeded the latter part of the month and, because of the rain on April 27, germination probably will occur early in May.

The unusually dry weather in March and which continued until April 7 caused poor stands of rice in many of the commercial fields.

The heavy rains that fell April 7 and 8 were not so beneficial as they would have been had not low temperatures and strong northerly winds immediately followed and continued for several days. The cold delayed the germination of rice seed until after a heavy crust had been formed, due to the drying effect of the winds. This crust prevented the emergence of the seedlings and so retarded their growth that many died before the fields could be irrigated to soften the crust. Rather than have a poor stand of grassy rice, some farmers reseeded their fields.

The maximum temperature in April was 87° and the minimum, 36°. The total precipitation was 3.91 inches, recorded on 7 days, which is above the 26-year April average of 3.65 inches.

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) (May 16)

The nursery seeding operations began April 17. Owing to low temperatures and dry weather emergence on the space-planted seed-treatment experiment was not complete enough to count until April 29. The land was irrigated twice to promote emergence.

Yield tests and the greater part of the progeny rows were seeded from April 15 to 21, inclusive. Seedling emergence was not complete on these until after May 9 when the field was irrigated. Miscellaneous material seeded in another field April 25 and 27 is being watered today. The crust has set like cement around the seedlings; they will, however, stretch up as soon as the land is irrigated.

The material being grown this season totals about 3,800 plots.

There has been no effective rainfall at the station since April 28, although there have been good showers within a few miles. There is a marked upstream current in the bayous because of the lack of precipitation to replace that removed for irrigation, and there is considerable danger of salt water being used to flood commercial fields.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (May 23)

The drought which prevailed in this section throughout the first months of 1936 was broken on May 8 by a rain of 1.95 inches. Since that time conditions have been rather favorable for small grain. Temperatures during the month have been about normal. Since the end of the drought there have been several small showers and the weather has been partly cloudy for some time. There have been heavy dews nearly every morning. These conditions have been very favorable for the spread of both leaf and stem rust. The former occurred so late that only slight damage resulted. Stem rust has become quite general and will injure late maturing varieties to some extent.

Wheat is maturing fast at this writing. Early Blackhull, Quivira, and other early maturing strains have been harvested. Harvest will be quite general by next week. Fall sown barley and oats were harvested this week.

Crown rust and stem rust of oats have appeared but there has been no general infection so far. Fall sown oats matured a fair crop on the station in spite of the drought. However, winter and spring oats on farms are very short and some are so short they cannot be harvested. Yields probably will be light. Many fields of oats have been plowed under as a green manure crop in the new Government crop control program.

The writer visited the cooperative experiments in the Texas Panhandle from May 19 to 22. Rains have recently occurred over this area but too late to save the wheat crop. Aside from some irrigated wheat in Hale and Floyd counties and a small area of dry land wheat in Randall County there is no wheat of commercial value on the Plains. Some fields have been left to mature and will be combined to save seed. A considerable portion of the wheat has been pastured off or listed on the contour for next year's crop. There appears to be very little wheat of commercial value anywhere in west Texas. North Central Texas will produce a fairly good crop.

Dr. M. A. McCall was a station visitor on May 12. Mr. R. O. Snelling, of the U. S. Dry Land Field Station, Lawton, Okla., was a visitor May 17. A field day was held May 15 which was attended by about 600 farmers.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (May 16)

All varieties of winter wheat were first headed by May 15. Early Kanred, Early Blackhull, and other early types are showing signs of ripening. Yields in 1936 promise to approach the average if climatic conditions are not too severe during the next two weeks. Cereals, pastures, and trees are much in need of rain at present.

More rain fell during the first half of May than in the first four months of 1936. The precipitation for the first half of May totaled 1.38 inches. The maximum temperature was 94° on May 15, the minimum 45° on May 2, and the mean, 68°.

The Woodward Lions Club were station visitors on May 12. On May 14 the Mooreland High School agricultural group was taken on a tour of the station. Dr. McCall and Mr. R. O. Snelling visited the Station on May 15 and 16.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (May 21)

The first half of May was marked by mild weather with frequent heavy showers of rain. Winter wheat has made a very good growth and the earlier varieties are now in full head. In southern Kansas, Early Blackhull was observed in full head on May 10. On the upland, winter wheat is short and the stands are thin in many fields.

Although there have been frequent light rains and heavy dews, there is still practically no natural infection of either leaf rust or stem rust on wheat and oats. The night temperatures have been too low for abundant spore germination, heavy infection, and rapid development of cereal rusts thus far.

Satisfactory infections of both leaf and stem rust of wheat has been obtained in the rust nursery by hypodermic inoculations. Leaf rust has spread slowly to the lower leaves of most of the nursery wheats, but the upper leaves are still rust free. Stem rust infection has not yet spread beyond the culms actually inoculated. Mildew infection is very heavy on winter wheats in the rust nursery, and speckled leaf blotch is prevalent on commercial fields of wheat in this part of Kansas.

Drs. S. C. Salmon and K. S. Quisenberry were recent Station visitors.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (May 16)

Weather favorable for field work continued throughout the first half of May except for a few windy days. There was no effective precipitation during this period and the surface soil is very dry. The maximum temperature was 93° on the 15th and the minimum 32° on the 12th. There was a precipitation of 0.03 inch.

Seeding of wheat head selections received from Washington was completed May 2. Wheat seed grown in the greenhouse at the Arlington farm (Virginia) was sown in rod rows May 5. Many plants emerged about a week after seeding but stands are not yet complete. Practically complete emergence of wheat, oats, and barley plots and wheat nursery rows sown in April occurred May 8 and stands in general are satisfactory.

The flax varietal plot and nursery land was duckfooted a second time May 6 to destroy weeds that started growth following the rain on April 29 and 30. The flax varietal plots in triplicate were sown May 8 and the main flax nursery in 17-foot rows May 8 and 9. The flax increase plots and flax sick soil nursery, with the exception of the breeding and genetic material, were sown May 11 to 13. The flax sown in varietal plots and some flax in nursery rows are just emerging today. Complete stands are not expected until after an effective rain.

The flax F_1 hybrids in the greenhouse were harvested May 15. The seed will be sown early next week.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 15)

The month of May has been somewhat dry so far. There has been only about one-fourth inch of precipitation so far. Temperatures have varied from below freezing to 96°, the latter being the temperature this afternoon. There have been a few windy days but no serious soil blowing in this vicinity.

Most of the experimental seedings of cereal crops have emerged with fairly uniform stands. Rain is needed to insure continued growth. Flax varieties were seeded this week and it is planned to plant corn varieties next week. In the cooperative experiment of seeding spring wheat of various test weights from 39 to 60 pounds, all weights have apparently shown fairly good germination. If the present hot, dry weather continues the seedlings from light seed will have a severe test of vitality.

Corn, oats, and barley are being seeded in this region, and some flax will be sown, the acreage depending to some extent upon the rainfall.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (May 19)

The first nursery seeding at Fargo was done on April 21. Since that time there has been very little rain and seeding has gone forward uninterrupted. Most of the seedings have emerged with very good stands, though the stands in some of the later experiments may be somewhat irregular. Rain is needed at the present time.

The Langdon cereal nursery and field plots were sown May 5 to 9 in rather dry soil. The Langdon district has had practically no rains of consequence and only the moisture from the heavy snowfall is present to insure germination.

Temperatures at Fargo and Langdon have been generally below normal all spring.

The uniform winter-hardiness nursery at Langdon was well protected by snow from late October to April and survived temperatures of 51° below zero with an average survival of about 70 percent. Some differential killing occurred.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 8

June 10, 1936

Personnel (May 26-June 10) and Field Station (May 16-31)

PERSONNEL ITEMS

Mr. C. E. Chambliss recently spent three weeks in Minnesota, Wisconsin, Michigan, Illinois, and Missouri in the interests of wild rice investigations. He conferred with representatives of the Bureau of Indian Affairs on the production and improvement of wild rice on Indian reservations and examined Zizania specimens in the herbaria of several institutions.

Dr. M. T. Jenkins spent two days in Lancaster County, Pennsylvania, the early part of May in planting cooperative corn yield tests.

Dr. Jenkins left Washington on June 7 to visit agricultural experiment stations in Ohio, Indiana, Illinois, Iowa, Kansas, and Missouri and confer with officials regarding cooperative corn research. He will return about June 30. (This trip was reported in the Cereal Courier of April 25 but was not made in April.)

Dr. A. G. Johnson visited grain fields in the vicinity of Culpeper and Raccoon Ford, Va., on May 23 to note the presence of diseases. Loose smut was found in every field of wheat visited and loose and covered smuts and stripe disease of barley were found in a number of barley fields.

On the farm of Mr. T. R. Davis, near Raccoon Ford, a field of Arlando wheat was inspected that had been sown with seed grown in a seed plot, the seed for which had been treated by the modified hot water method for preventing loose smut. The seed plot in 1935 had shown no loose smut whatever and the field in 1936 grown from this seed showed a very slight trace of loose smut, indicating that the wheat in the seed plot had been reinfected with loose smut by windborne spores.

Dr. Johnson left Washington on May 30 for Leavenworth, Kans., to take data on wheat flag smut on the cooperative experimental plots. He also conferred with officials of the Kansas Agricultural Experiment Station and with Division personnel at Manhattan regarding cooperative wheat disease experiments. A survey trip was made with Dr. Hurley Fellows through south-central Kansas to inspect wheat fields, particularly for smuts and other diseases.

In general, wheat was found to be in excellent condition in practically all of the area covered. Traces of loose smut of wheat were found throughout the area but no stinking smut. Septoria leaf blight was found nearly everywhere on wheat and black chaff was found to some extent at some locations. Take-all was found on a few farms, but in general, there is less this year than usual.

The most conspicuous cereal disease noted was oat smut. This was unusually abundant almost everywhere. Some estimates were as high as 40 to 50 percent. One field near Wichita was reported as containing 95 percent smut but this field was not seen.

Mr. L. W. Kephart spent two days in May investigating the skeleton weed in grain fields in Virginia.

Mr. Kephart left Washington on June 8 for Lamberton, Minn., and Cherokee, Iowa, to make arrangements for bindweed root studies in connection with the bindweed research program recently undertaken in cooperation with eight western agricultural experiment stations. He will return about July 15.

Miss Mary L. Martini left Washington on May 26 for Idaho and Utah to take notes and compile data on cooperative barley experiments. She will return some time in September.

Dr. N. E. Stevens, who is collaborating with this Division, made a survey of sweet corn diseases in New Jersey, Delaware, and Indiana in May.

Dr. V. F. Tapke spent two weeks, beginning May 18, at Statesville, N. C., to get data on cooperative barley smut experiments.

Mr. J. W. Taylor and Dr. H. A. Rodenhiser spent the first five days in June making bunt collections on soft red winter wheats in fields at various places in Virginia, North Carolina, Tennessee, and West Virginia.

RECENT PUBLICATIONS

Kansas Mycological Notes, 1934. C. L. Lefebvre and C. O. Johnston. Kans. Acad. Sci. Trans. 38: 101-103. 1935.

Inheritance of Chlamydospore Characteristics in Oat Smut Fungi. (G-1003) C. S. Holton. Jour. Agr. Research 52(7): 535-540. April 1, 1936. (Cooperative investigations by the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

Influence of Temperature and Other Factors on the Morphology of the Wheat Seedling. J. W. Taylor and M. A. McCall. Jour. Agr. Research 52(8): 557-568, figs. 1-8. April 15, 1936. (G-1005)

Crown and Root Development in Wheat Varieties. R. B. Webb and D. E. Stephens. Jour. Agr. Research 52(8): 569-583, figs. 1-3. April 15, 1936. (G-1006) (Cooperative investigations between the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

Certain Insect Vectors of Aplanobacter stewarti. F. W. Poos and Charlotte Elliott. Jour. Agr. Research 52(8): 585-608, figs. 1-13. April 15, 1936. (K-266)

Floral Abnormalities in Sorghum. R. E. Karper and J. C. Stephens. Jour. Heredity 27(5): 183-194, figs. 6-8. May 1936. (Cooperation between the Texas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

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IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Crown Rust of Oats, H. C. Murphy) (June 2)

Prospects for a normal oat crop in central Iowa have been greatly improved by recent rains, although early varieties already have begun to head while still very short as a result of the unusually hot, dry weather in May. The bulk of the oat nursery at Ames was sown the week of April 13. A good stand was obtained in all seedings and the heavy initial growth was aided by a precipitation of 1.41 inches on May 1. Except for this precipitation on May 1 the remainder of the month was abnormally hot and dry, with a total precipitation of 2.04 inches, which is 2.21 below normal; maximum temperatures were frequently above 90°. Therefore, conditions for small grains have been very poor although the precipitation of 0.71 and 1.71 inches on June 1 and 2, respectively, brought relief for small grains.

The corn crop in Iowa appears to be in excellent condition with stands in general very satisfactory considering the unusually poor quality of the seed available for planting. At the Northern Iowa Experimental Farm located at Kanawha small grains have not suffered because of more abundant rainfall.

Despite the drought in May excellent initial infection of crown and stem rust on oats has been obtained on the rust spreaders by means of hypodermic injection of urediospore suspensions. Conditions now appear favorable for natural dissemination of this initial inoculum. Leaf and stem rust on winter wheat were observed at Ames on May 18. The infections of both rusts were very light, although one center of heavy infection of stem rust was found.

A total of 80 selections and varieties of winter oats were sown in five-foot rows at Conesville, Iowa, late in October. The disadvantage of this late sowing, combined with the most severe winter experienced in Iowa in 117 years, was balanced somewhat by a heavy snow cover during most of the subzero weather. Plants survived in 28 of the 80 rows and are now fully headed. Three winter barleys from the Purdue (Indiana) station also survived with very little winter-killing.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (June 3)

The weather in May has been warmer than normal. The maximum temperature was 93° on the 16th and the minimum 33° on the 3rd. The mean temperature was 64.2° as compared with a normal of 57.7°.

A precipitation of 2.25 inches was recorded for the month, of which 1.20 inches fell on May 22. The normal rainfall for May is 3.67 inches; there is a deficiency of 1.42 inches for May and 0.42 inches since January 1, 1936.

Drier and warmer conditions during the first part of the month allowed seeding of small grains to be completed. Weather conditions have been very favorable during the month and small grains have made a rapid growth. Winter rye is headed and winter wheat is just beginning to head. Winter wheat in farmers' fields is very good. Some winter-killing occurred in spots that were not well covered with snow during the winter.

Corn planting has been completed. In some parts of the State it was delayed because of wet land. After planting there has not been sufficient moisture to germinate the seed.

A recent root rot survey made by Dr. R. H. Bamberg showed that wheat fields in several counties in western and northwestern Minnesota had from 5 to 40 percent infection of the seedlings from untreated seed, with brown discoloration of the roots. About half the fields examined were infected. Grain from treated seed was relatively free from seedling blight.

Dr. S. C. Salmon was a visitor at the Station recently.

TEXAS

AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION (Wheat Improvement, E. S. McFadden) (June 1)

The long spring drought was finally broken on April 22 by a rain of 1.10 inches. Since that date there has been no lack of moisture. Harvesting of wheat and oats was completed on the Station on May 22 and threshing is now progressing rapidly.

The cereal rusts were able to develop abundantly in our plots in spite of the spring drought, as there were heavy dews nearly every night throughout April and May. Leaf rust of wheat was uniformly distributed by the last week in February. Crown rust of oats started developing by the middle of March. Two small infection centers of stem rust of wheat were found on March 25, at which time the rust was in the second generation and could easily be traced back to the original pustules. By May 15 all susceptible varieties of wheat in the main nursery, with the exception of the earliest maturing sorts, had been killed by stem rust, all of which appeared to have spread from the two infection centers discovered near the south side of the wheat plots on March 25. For fully a month after these infection centers were discovered, no stem rust could be found over a hundred feet to the east or west of the infection centers, most of the infection being confined to fan-shaped areas extending in a general northerly direction, from the starting point. Even as late as May 15, no stem rust could be found in the hybridizing nursery, which was isolated about 10 rods southeast of the main plots. From these observations, it seems quite evident that little or no inoculum of stem rust of wheat has come into this area from outside sources and produced infection since some time in late February or early March when spores that started the original infection centers were brought in.

Essentially the same type of spreading was observed in the case of leaf rust of barley as in stem rust of wheat. A single infection center of leaf rust of barley was discovered near the northeast end of one of the barley plots during the last week in March. The infection later became so heavy around this center that the barley plants were dwarfed and produced but little grain. However, only a trace of this rust could be found at the southwest end of the same plot on May 1, at which time the barley was ripe.

In the case of stem rust of oats, the infection has been uniformly distributed since first observed about April 1. This is also true of crown rust. It appears probable that inoculum of these two rusts of oats has been quite abundant and uniformly distributed in the air since late March or early April. It may be that this inoculum has come from infection centers in surrounding commercial fields of oats where the rust overwintered or blew in from some outside source at the same time that stem rust of wheat and leaf rust of barley were brought into our plots.

With the possible exception of leaf rust of wheat, I have found no evidence that any of the cereal rusts overwintered in our experimental plots. It appears more probable that the original inoculum arrived in this area from some outside source at some time in late February or early March, following which very little additional inoculum of outside origin has been brought in. It hardly seems probable that the original inoculum of stem rust of wheat came in from the south, as wheats in our cereal nurseries along the Gulf Coast remained free from stem rust for some time after the nursery at College Station had become heavily infected. It appears more probable that most of our original inoculum of stem rust of wheat in particular came in from the north on the "wings of a norther" at some time in February or early March in the form of an occasional viable spore, and that little or no additional inoculum arrived thereafter from outside sources.

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (June 10)

The drought that prevailed throughout the State during the first four months of the year was broken the second week in May by general rains. At Denton, the first important rain was received on May 8, 1.95 inches falling during a 12-hour period. Frequent showers followed and during the period from May 22 to 29 a total of 5.02 inches was recorded. The general rains covered almost the entire State.

Small grains recovered rapidly following the rain of May 8. At that time spring-sown oats were in the boot and because of the rain were enabled to grow sufficiently to become tall enough to cut. Wheat matured a good crop of well-filled grain but oats probably will produce low yields and many fields were abandoned before the drought was broken. All small grains ripened during the 8-day period of wet weather May 22-29 and as soon as fields dried harvest was completed in rapid order.

Owing to the extremely dry weather and low humidity during the spring months, leaf rust of wheat did not become a major factor in yield of wheat this year. After the rain of May 8 the disease spread rapidly and susceptible varieties were soon highly infected but so late that damage was small. Stem rust appeared on May 5, which is unusually early. Late maturing varieties were injured to a considerable extent. Crown rust of oats did not appear until May 22 and, as oats were turning at that time, very little spread occurred. Stem rust of oats was found about this time but did no damage.

Among recent visitors were Dr. R. H. Painter, entomologist, Kansas Experiment Station, Manhattan, Kansas; Dr. K. S. Quisenberry, Lincoln, Nebr.; Mr. C. O. Johnston, pathologist, Manhattan, Kans.; Dr. P. C. Mangelsdorf, Texas Agricultural Experiment Station; and Mr. Wallace Butler, San Antonio, Tex.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (June 2)

The last half of May was decidedly moist. Rain in measurable quantity occurred on nine days. The first planting in the date-of-planting experiment with broomcorn was scheduled for the last week of May but rain delayed planting until June 1.

The maximum temperature for the last half of May was 91° on the 16th, and the minimum, 56° on the 19th. The precipitation was 3.83 inches, making a total of 5.21 inches for May.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (June 2)

Nearly two weeks of cloudy, rainy weather came to a close on May 29. Since then clear weather has resulted in higher temperatures and varieties are ripening fast. Eighteen early strains of winter wheat and five of winter barley were harvested on June 1.

Dr. K. S. Quisenberry and Mr. C. O. Johnston were at Woodward on May 22 and 23 and inspected the wheat nursery. Mr. Johnston found one winter wheat leaf infected with stem rust. The infection was probably 8 to 10 days old. The cloudy weather during the last half of May was accompanied by temperatures too low for the optimum development of rust.

A heavy infection of bunt on susceptible varieties is being obtained in the bunt nursery.

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (June 3)

The writer has just returned from a trip through Oklahoma and Texas. A number of commercial fields of wheat as well as many experimental plots at several experiment stations were examined for rust. A very heavy infection of stem rust was observed at College Station, Tex. At Denton, in northern Texas, heavy infection was observed on part of the experimental material but on other seedings infection was very light. Occasional fields showed only traces. Near Gainesville, Tex., some fields showed a moderate infection on late plants around the edges but only traces in the middle of the fields. Between the Red River and Ardmore, Okla., general fields of wheat showed only traces of both stem and leaf rust on May 25. No rust of any kind was observed on the short thin wheat of western and southwestern Oklahoma on May 23 and 24. At Stillwater, Okla., on May 30, only traces of stem rust and leaf rust could be found. Stem rust has been reported as occurring in traces in Chase County, Kans., but no natural infection has been observed in the vicinity of Manhattan. In the writer's opinion the severe epidemic of 1935 is not to be repeated this year. There is no heavy concentration of inoculum in northern Texas and the stage of maturity of winter wheat is much more nearly normal than in 1935. Although average temperatures for May were slightly above normal at Manhattan, the very cool nights have been unfavorable for stem rust infection. Leaf rust is developing very rapidly and a uniform and heavy infection undoubtedly will occur.

Wheats in the rust nurseries are extremely tall and inclined to lodge. Many varieties and hybrids are nearly five feet tall. This extreme vegetative growth was brought about by well-distributed and very effective rains in May. A total of 5.78 inches was recorded for the month, which is 1.49 inches above normal.

Oats sown after the April freeze look exceptionally well in fields that are free from smut. There is a decided scarcity of such fields in the Southern Plains area this year, however. Oat smut infection is extremely heavy throughout the entire area and many reports are being received indicating that infections run between 30 and 50 percent in some commercial fields. Many farmers are inquiring about the suitability of such a badly smutted crop being used for hay. Much of the oat crop will not be harvested for grain.

Recent Station visitors were Dr. K. S. Quisenberry, who is cooperating with the Nebraska Agricultural Experiment Station, and Dr. J. B. Harrington, of the University of Saskatchewan at Saskatoon.

KANSAS

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (June 1)

An abundance of rain the last 10 days has delayed sorghum planting but has assured a satisfactory wheat crop, barring hail.

Wheat is now fully headed with the fruiting period well along. Barley and oats are coming into head but the late start has resulted in limited tillering. These crops should produce fair yields.

Plans for the sorghum planting have been completed. The nursery will include approximately 1,600 lines. Much of the material grown last year will be replanted this year, because of the failure of the crop to produce grain or satisfactory growth.

Mr. Rodney McCammon has been appointed to assist with the seasonal work during the summer, effective June 1. He has completed his sophomore work at Kansas State College.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. U. Curtis) (June 1)

A precipitation of 1.94 inches was recorded from May 6 to 10 and 1.51 inches on May 26 and 27. The latter rain was general over eastern Colorado and especially heavy in southeastern Colorado, the area most severely affected by the drought of the last few years. These rains were very beneficial to wheat, oats, and barley. The total rainfall for May was 3.51 inches.

The winter wheat on the station is the best in several years. It is heading at present. This is about a week to 10 days earlier than usual. Corn planting has been completed. Corn is emerging to good stands on nearly all plots. Sorghums are being planted at the present time.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (June 1)

Severe drought conditions already prevail in this locality. Only 0.01 of an inch of precipitation was recorded in the last half of May. Unless rain occurs soon the small grain crops are likely to be damaged beyond recovery. Temperatures have been generally high, accompanied by frequent winds strong enough to cause injury to young plants from soil blowing. The maximum temperature was 92° on May 31 and the minimum, 37° on May 18. A high wind about 3 a. m. May 21 blew down some large trees, broke off branches of many trees, and stripped patches of shingles from the roofs of buildings.

A few plants of winter wheat have emerged in the winter hardiness nursery, probably the result of spring germination rather than survival of plants that emerged in the fall. Differences in survival of different varieties are not conclusive, as some plants of each variety emerged. The average number of plants per row ranged from 2.0 to 17.7, with an average of 7.6.

The wheat, oats, and barley sown in April are about 6 inches tall but are making slow growth and are now showing the effects of drought in firing of the leaves. Spring wheat seed from Arizona was received and sown May 25. None of this is likely to emerge until after a rain.

Flax sown in varietal plots May 8 emerged about May 17 with fair stands. There are many patches, however, where seed failed to germinate. Some flax sown in nursery rows May 8 and 9 emerged in patches but stands are very poor. Flax plants that have emerged are now about 3 inches tall.

Harvesting of the flax F_1 hybrids in the greenhouse was completed May 20 and the seed was sown in the field May 21.

Cutworms are doing some damage to flax plots and nursery along edges adjacent to grass plots.

Grasshoppers appear to be more numerous than usual but are still very small.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (June 1)

Dry weather, with a considerable number of hot days, has prevailed during the month of May. The precipitation for May was slightly above half an inch, while that for the period from January 1 to June 1, was 2.38 inches. The precipitation for the past 9 months (September to May) has been 3.68 inches, being lower than the low record of 3.87 inches recorded for the same 9 months ending May 31, 1934. The normal precipitation for this 9 months' period is 8.14 inches. The highest temperature for May was 98° on the 16th and the lowest, 29° on the 13th.

Cereal crops are badly in need of rain, as shown by the drying of the lower leaves. Pastures and grass fields also are getting dry. Thunderstorms have been of local benefit in parts of this district, but a general rain is badly needed over the entire State.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (June 1)

The total rainfall for May was 1.22 inches, 0.69 of which fell on the 22nd. The cereal experiments still look very well. There is considerable moisture reserve, but with the May mean temperature 7° above normal, the conditions in the State are not promising.

Conditions at Langdon are probably the least favorable since the experiments were begun there in 1928. There has been no significant precipitation since the snow disappeared. Reports indicate that the nursery and wheat varietal plots have emerged but no information is available on the uniformity of the stands. Many farm fields have been reseeded following severe dust storms.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, E. C. Coey) (June 1)

May has been very dry and windy. The rainfall was only 1.31 inches, as compared with the 28-year average of 2.16 inches. The wind blew constantly from May 17 to 23. The maximum temperature was 91° on May 29 and the minimum, 33° on May 5.

Regardless of the drought and wind May has been a good growing month for spring grains. Although in the first half of the month the winter wheat seemed to go backward instead of making its usual spring growth, the noticeable growth made in the last 10 days has been encouraging.

While the grain crops have not been suffering from drought, the grasses in the plots and pastures have been affected. If this dry hot weather continues for another week, crop prospects are going to be greatly reduced.

OREGON

SHERMAN COUNTY BRANCH STATION, MORO (Cereal Agronomy, D. E. Stephens) (May 28)

Weather conditions for crop growth thus far this crop year have been unfavorable in most of the Columbia River Basin area of Oregon. Winter wheat did not emerge until mid-January because of late fall seeding. There was considerable injury from winter-killing, with very slow recovery. Damage from soil blowing was severe in some localities, necessitating reseeding to spring grains. In many cases the seeding of spring grain was deferred too long to expect normal yields.

On the Station there was considerable differential winter-killing in nursery seedings and some in the field plot trials. Federation completely winter-killed and the Turkey wheats were damaged severely in spots. In the tillage trials there was rather severe winter-killing on plots that received no cultivation during the 1935 fallow season, while wheat grown after normally cultivated fallow showed much less injury. The degree of firmness of the soil at the time the low temperatures occurred apparently had considerable influence on the amount of winter-killing.

Winter wheat is not quite so far advanced as usual for this time of the year. The earlier varieties are about ready to head. Some of the early spring barley varieties in the nursery are heading.

The total precipitation since Sept. 1, 1935 at Moro is 9.7 inches, nearly the normal for the period, but since March 1 there has been a scarcity of rainfall in sufficient quantity at any one time to be of much value. The total precipitation since March 1 to date is 2.06 inches. With favorable weather during the next few weeks, wheat yields in this section should be fair but probably not up to normal because of thin stands and weeds. More rain will be needed to mature the crop. Wheat on shallow soil already is showing drought injury.

The highest temperature recorded this year was 92° on the 26th. It is somewhat cooler today and cloudy. A good rain now would be of much benefit to all crops.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (June 1)

Spring-sown crops grew rapidly in May. Most of the barley nursery has headed, while the spring wheats are well in the boot. Flax has made an excellent growth up to date. It has been necessary to irrigate everything at least once. Corn and grain sorghum varietal tests, as well as all county corn tests, have been planted.

The winter wheat situation is not so encouraging. Stands generally are poor, and the wheat plants have done little tillering because they emerged so late in the spring. Very few fields promise to give yields in excess of 20 bushels per acre.

The moisture conditions in the northern part of the State have been fair, with an abundance of irrigation water available. The southern part of the State has had neither rains nor normal irrigation supply, and the crops are suffering at the present time.

The mean temperature for the month was 58° as compared to a mean of 56°. The precipitation totaled 1.05 inches as compared to 1.66 inches for a 16-year mean. Evaporation was practically normal, totaling 4.15 inches.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 9

June 25, 1936

Personnel (June 11-25) and Field Station (June 1-15)

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PERSONNEL ITEMS

Mr. J. Allen Clark left Washington on June 20 for a two-months trip in Iowa, Nebraska, Colorado, Wyoming, Montana, North Dakota, South Dakota, Minnesota, and Wisconsin to inspect and take notes on cooperative wheat nurseries and confer with officials of State agricultural experiment stations and Division personnel regarding cooperative wheat experiments. He will also go to Edmonton, Saskatoon, and Winnipeg, Canada, to visit the agricultural experiment stations.

Mr. F. A. Coffman left Washington on June 22 for an extended trip in the interests of cooperative oat investigations. His itinerary will include stops in Delaware, New Jersey, New York, Ohio, West Virginia, Indiana, Michigan, Illinois, Iowa, Missouri, Kansas, Colorado, Utah, Idaho, Wyoming, Montana, and North Dakota. He will confer with officials of State agricultural experiment stations and Division personnel regarding cooperative experiments, take notes on oats in experimental plots, and examine oats in commercial fields and in markets. He will also assist in making selections of oats and obtain diseased plant material for laboratory study in Washington.

Dr. Charlotte Elliott spent a week in New Jersey, New York, and Pennsylvania inspecting cooperative sweet corn plots. She returned to Washington on June 20.

Mr. C. H. Kyle left Washington on June 11 for Tifton, Ga., where he will select and hand-pollinate corn and take notes in cooperative experimental plots. He will also go to Experiment, Ga., and to points in Florida and South Carolina, and North Carolina to examine cooperative experiments.

Dr. M. A. McCall returned on June 22 to Washington, D. C., ending an extensive field trip with stops in Louisiana, Texas, Oklahoma, Arizona, Sonora (Mexico), California, Nevada, Oregon, Washington, Idaho, Utah, Montana, North Dakota, Minnesota, Wisconsin, and Illinois.

Cooperative relationships with the various State agricultural experiment stations in the States visited are on a most satisfactory basis and reflect credit on the Division personnel charged with the responsibility of maintaining these connections. As detailed reports relative to work and seasonal conditions at the different stations are given from time to time in the Cereal Courier, it seems unnecessary to give here any detailed report of stops at various stations. It is appropriate, however, to state that in every instance both the quality and the quantity of work in progress are excellent and that from year to year the increase in the efficiency of operation and in the quality of output is marked to one making periodic visits to the various stations. The field personnel of the Division is second to none in industry, devotion to duty, and in general all round effectiveness.

(Mrs. Kinney hopes that this latter statement will prompt those who are negligent in submitting Courier reports also to be more diligent in this respect in the future. M.A.M.)

Dr. S. C. Salmon spent six days in Ohio, Illinois, Indiana, and Wisconsin to consult with State and Federal officials on cooperative wheat research. He returned to Washington on June 28.

Mr. T. R. Stanton left Washington on June 10 for an extended trip in the interests of oat investigations. His itinerary will include stops in Indiana, Illinois, Missouri, Arkansas, Kansas, Colorado, Idaho, Utah, Wyoming, Nebraska, Iowa, Minnesota, North Dakota, South Dakota, and Montana. He will take notes on cooperative oat experiments, collect plant and disease specimens, and study the growing of the oat crop on farms.

Mr. J. W. Taylor left Washington on June 24 for La Fayette, Ind., to attend a three-day conference of agronomists on matters dealing with soft red winter wheat varieties.

RECENT PUBLICATIONS

Further Experiments on the Control of Barley Smuts. R. W. Leukel. U. S. Dept. Agr. Tech. Bull. 513, 12 pp., March 1936.

Inheritance of Resistance to the Hessian Fly in the Wheat Crosses Dawson x Poso and Dawson x Big Club. W. B. Cartwright and G. A. Wiebe. Jour. Agr. Research 52(9): 691-695, fig. 1. May 1, 1936. (K-268) (Cooperation between the Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF BUDGET AND FINANCE
WASHINGTON, D. C.

June 20, 1936

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES:

Paragraph 3348 of the revised Regulations of the Department, approved by the Secretary on April 23, 1936, to become effective July 1 of this year, reads in part as follows:

> "Automotive equipment, computing, bookkeeping and other accounting machines, duplicating and other reproduction equipment, motion picture cameras and projection machines, sound recording and other motion picture equipment, and noiseless typewriters, irrespective of cost, shall not be purchased without the prior approval of the chief of the division of purchase, sales, and traffic who will first refer such requests to the proper departmental authority for clearance."

This restriction has been included in the Regulations for legal as well as administrative reasons. Noiseless typewriters, for example, may only be purchased after approval by the Secretary. The purchase and use of printing and other duplicating equipment is carefully restricted by law.

This provision is not restricted to purchases from regular appropriations nor to equipment for offices in Washington. It applies to all funds available in the Department and to all offices both field and Washington.

All exemptions from former regulations concerning purchases of these items are cancelled by the Secretary's approval of this Regulation.

W. A. JUMP
Director of Finance

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

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LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (June 16)

The temperature in May was about normal. The maximum was 89° and the minimum, 70°.

The total rainfall was 6.05 inches, which occurred on 16 days. On the 28th, 3.77 inches were recorded. This relieved the anxiety concerning the low level of the water in the lakes and streams from which much of the water is obtained for the irrigation of rice. The frequent rains and many cloudy days in May were very beneficial to growing rice. Commercial fields of rice improved wonderfully in May, and as a whole the crop in southwestern Louisiana is exceptionally good.

With the exception of the date-of-seeding plots, rice seeding on the Station was completed May 9. There are satisfactory stands in most of the plots as a result of the frequent rains that followed seeding.

Corn in the date-of-seeding plots is better than usual. Stalk borers do not seem so numerous as in past years.

Where cotton followed cotton the stands in the cotton plots were greatly reduced by "root rot". This was not true where cotton followed rice or pasture. Because of thick hand seeding the stands are nearly perfect in the cotton varietal plots.

Station visitors in May included Dr. M. A. McCall, Dr. C. T. Dowell, Director of the Louisiana Experiment Stations, and Mr. H. W. Barre, in charge of the Division of Cotton and Other Fiber Crops and Diseases.

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, N. E. Jodon) (June 16)

Evaporation has been high and rainfall practically nil since the 3.77 inch downpour of May 28. This has made it difficult to supply and maintain the required depth of water on the plots. Increased weeding in the nursery has been necessary because the water has not been deep enough to drown out barnyard grass and other weeds.

The influence of fertilizers applied nearly 20 years ago is again apparent in one part of the nursery. Before the nursery was submerged rice in this part grew well and had good color, but later weeds became established. After the water was applied and the grass removed, the rice appeared yellow and comparatively unthrifty.

The nursery material, on the whole, appears to be in good condition, although in some places rather poor stands were obtained because of dry conditions. No diseases of importance have been noted so far. The rice water weevil has caused some injury to the young leaves. While muskrats have cut some stems they have as yet done no serious injury.

The final seeding of nursery material was made June 9, when 440 plant rows of F_2 selections of Fortuna x Caloro, Fortuna x Blue Rose, and F_4 rows of Blue Rose x Rexoro for selection and genetic purposes were sown.

Chlorophyll deficiencies were found in three F_2 populations, including albino, lethal yellow, and virescent yellow types.

ARKANSAS

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) (June 17)

Helminthosporium leaf spot first appeared on plants from Texas seed about the middle of May.

Emergence counts on the April and May seedings of the seed treatment plots were completed on June 13. The emergence on space-planted seed from Texas ranged from 2 to 29 percent, with an average of 10 percent, and from 7 to 38 percent with seed from Arkansas with an average of 19 percent.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (June 16)

Sorghum planting is getting under way. The first planting of grain sorghum varieties was made June 8 and emerged to stands by the 12th. The sorghum varietal nursery was planted June 16.

A hard dashing rain of 2.33 inches fell during the night of June 4 and appeared to do more harm than good by washing and packing the soil. Since then the weather has been warm and windy and there has been no rain.

The maximum temperature for the first half of June was 99° on the 8th and the minimum, 53° on the 3rd. The precipitation was 2.37 inches.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (June 17)

The last of the varietal plots were "combined" on June 17. Yields of some of the varieties on fallow probably will exceed 25 bushels per acre.

Nursery harvesting was completed on June 16 with the exception of some genetic material, which will be harvested by the end of this week.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (June 16)

The drought still continues. The early wheat, oat, and barley varieties are heading out very short and suffering severely from drought. The wheat nurseries and increase plots are still in good condition but cannot hold out much longer without rain.

Cutworms have been doing considerable damage to flax.

The maximum temperature was 93° on the 12th and the minimum 41° on the 9th. The precipitation was 0.15 inches.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (June 13)

The weather is very cool and there have been unseasonal rains. Stands in the nursery, varietal plots, and submerged plots appear to be better than in any of the past six years. The nursery and field plots will be submerged next week. Owing to the rains irrigation has not been needed as often as usual.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 10

July 10, 1936

Personnel (June 26-July 10) and Field Station(June16-30)

PERSONNEL ITEMS

Mr. A. C. Dillman left Washington on June 27 to take notes on cooperative flax classification nurseries at University Farm, St. Paul, Minn., and at the Montana Agricultural Experiment Station, Bozeman, Mont., and to inspect flax fields in Minnesota, North Dakota, South Dakota, and Montana.

Mr. Dillman will spend some time with Prof. T. H. Hopper at the North Dakota station in connection with a cooperative study of the relation of climate to the yield and quality of flaxseed and linseed oil. He will return to Washington about August 10.

Dr. H. B. Humphrey left Washington on June 15 to visit Manhattan, Kans., University Farm, St. Paul, Minn., and Ames, Iowa. At Manhattan, Dr. Humphrey conferred with members of the departments of botany and plant pathology and agronomy and with employees of the Division concerned directly with cereal disease investigations. On the last days of his stay at Manhattan he had opportunity to make a number of field inspections in the vicinity and found stem rust infection ranging from a trace to as much as 25 percent in certain fields.

At St. Paul, Dr. Humphrey conferred with Messrs. Stakman, Levine, Bamberg, Cotter, and others relative to field, laboratory, and greenhouse research on cereal diseases and with Dr. L. W. Melander concerning recent developments in barberry eradication in Minnesota.

While at Ames he attended the sessions of the summer meeting of The American Phytopathological Society and inspected the cereal-disease nurseries at Ames and Kanawha and conferred with Dr. H. C. Murphy and collaborators relative to research on crown rust of oats.

Dr. Humphrey returned to Washington on the 27th of June to leave the following week for an inspection of uniform cereal rust nurseries at Jackson's Ferry in Wythe County, and Elk Creek, Grayson County, Virginia. While on this trip he went with Mr. G. E. Matheny, in charge of barberry eradiction in Virginia, and Mr. James Godkin to inspect several wheat fields, in all of which varying amounts of stem rust were present, and numerous locations where the barberry (Berberis canadensis) had been eradicated. Stem rust of wheat and rye in that part of Virginia was this year more plentiful. Dr. Humphrey returned to Washington on July 3.

JUN 28 1936
PLANT INDUS

Dr. M. A. McCall left Washington June 30 for Wooster, Ohio, and spent a few days in conference with officials of the Ohio Agricultural Experiment Station relative to arrangements looking toward the establishment of the cooperative soft wheat quality laboratory, funds for which were provided in the appropriations for the fiscal year 1937. Dr. M. T. Jenkins was at Wooster at the same time and arrangements were completed in connection with the production and distribution of hybrid corn.

Dr. H. A. Rodenhiser left Washington on July 5 for his annual field trip in Minnesota, North and South Dakota, Montana, Idaho, Washington, Utah, Nebraska, Iowa, Illinois, Indiana, and Ohio for the purpose of inspecting and studying field plantings in cooperative bunt nurseries.

Mr. W. J. Sando left Washington June 25 for Aberdeen, Idaho, for the purpose of studying the interspecific and intergeneric hybrid material that is being grown for him at the Aberdeen Substation.

Mr. T. R. Stanton wrote from Ames, Iowa, on July 5 of his stops at various places along the route from Washington. At Bedford, Ind., where Assistant Director Harry Reed has a winter oat experiment, he found a survival of about 85 percent for Tennessee no. 092 (Fulghum, winter type) in a nursery including some 35 varieties and strains, of which about 25 were furnished from the Arlington Experiment Farm. Mr. Reed plans to increase this strain as rapidly as possible in order to test it under field conditions. In the uniform oat rust nursery there was no rust.

On June 12 Mr. Stanton visited the Edwards County Farm Bureau at the invitation of Mr. W. D. Murphy, County Agent, who took him to the farm of Mr. Gilbert Colyer, where six varieties of fall-sown oats were being grown in 10th-acre plots. The seed was sent from Arlington farm last fall. One of the Fulghums (winter type, C. I. 2499) was fully ripe and probably will yield 40 bushels to the acre. The reaction of this oat to the environment of Edwards County was a surprise to Mr. Stanton.

At Elsberry, Mo., some excellent Columbia oats were seen on June 13. The oat-breeding nursery at Columbia, Mo., was inspected on June 15 and 16. Only part of it was harvested owing to the drought. In central Missouri oats were exceedingly poor, many fields being pastured or cut for hay. Some of the Fulghum x Markton selections from Manhattan, Kans., were among the most promising of the newer hybrid material that is being tested at Columbia. The Columbia variety is now being grown on about 65 percent of the oat acreage of Missouri, according to Professor Helm.

Several days were spent with Dr. J. H. Parker and others at Manhattan, Kans. Many of the smut-resistant selections from Fulghum x Markton and Kanota x Markton were very promising. These are attracting attention because of the prevalance of smut in Kanota oats this year in Kansas.

At Fort Collins, Colo., some of the smut-resistant Markton x Victory and Markton x Idamine selections looked very promising.

The oat nursery at Lincoln, Nebr., has been severely damaged by the hot weather. Some of our new hybrid material was showing up very well, however. The Fulghum x Markton and Victoria x Richland selections were among the best. Dr. Quisenberry had an excellent small oat nursery at North Platte.

At Omaha, Nebr., the temperature was 110° on July 3.

Dr. V. F. Tapke left Washington on July 5 for Ithaca, N.Y., to take notes on cooperative barley smut experiments at the Cornell University Agricultural Experiment Station.

RECENT PUBLICATIONS

The Influence of Seed Hulling on Loose Smut in Naturally Inoculated Oats. V. F. Tapke. Phytopathology 26(6): 588-596. June 1936.

The Relation of Moisture Content and Time of Harvest to Germination of Immature Corn. G. F. Sprague. Jour. Amer. Soc. Agron. 28(6): 472-478, figs. 1-2. June 1936. (The studies reported were conducted cooperatively by the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

ADMINISTRATIVE NOTE

The space following the word "Appropriation" should be left blank on all vouchers. Prepare vouchers carefully in accordance with instructions sent you so delay may be avoided.

H. S. Smith
Junior Administrative Assistant

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

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LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (July 7)

Weather conditions were extreme in June. The maximum temperature was 98°, with 90° or above on 27 days, while last year the maximum was 91°, with 90° or above on only 8 days. The minimum temperature was 62° with 70° or above on 26 days.

The total June precipitation was 0.13 inch, which fell on three days, while last year the total was 3.37 inches, which fell on 10 days. The 26-year average precipitation for June is 4.38 inches. The lowest precipitation previously recorded for June, in the 26 years that weather observations have been recorded at this Station, was 0.63 inch in 1930. Only once in the 26 years was the monthly precipitation less than that of June this year and that was for October 1924, when no precipitation occurred.

Because of the heavy rains in May which filled all streams and lakes with fresh water, the extremely dry weather of June did not cause salt water to contaminate the water used for irrigation, except in certain localities in the southeastern portion of the rice area. Towards the end of the month, however, the condition was becoming serious. The continuous pumping was rapidly lowering the water levels in streams and lakes, and if continued, the water levels in a few weeks will reach a point so low it will be impossible to keep the salt water of the Gulf from entering.

The constant operation of the deep wells used for rice irrigation has so lowered the water level that there is anxiety lest the water will reach a point so low that it cannot be lifted by pumps.

While rice has suffered very little because of dry weather, corn in many localities will be a total failure. Even cotton is beginning to show a lack of moisture as indicated by slow growth and flowering to the top of the plants.

The rice on the Station has not suffered for lack of water, but it has been a hard task to keep the land submerged because of engine trouble and reduction in flow of water from the deep well. The water level in the well is down to about 50 feet below the soil surface. Normally the water level is between 18 and 30 feet below the surface of the soil. It was necessary to irrigate all rice plots seeded in June to start germination.

At this date rice diseases are less apparent than in any year since 1928. There is practically no leaf spot, which was so abundant during the past few years.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (July 1)

The condition of the rice crop at this time is about average, even though dry weather has caused some difficulty in keeping the fields watered.

The winter oat yields were very satisfactory this year. The plants were short in height, but there was a good rain at heading time so that the grain filled very well. There was very little crown rust this year. The average yield and weight per bushel for 20 winter oat varieties and strains grown in triplicated 1/40th-acre plots are given in the accompanying table.

Cotton, soybeans, and late planted corn have not been seriously injured by the drought but they will be if the dry weather continues much longer. Early planted corn has been seriously damaged.

The rainfall for the first six months of 1936 was 11.61 inches or 16.36 inches below the 6-year average. The maximum temperature for the same period was 104.0°, recorded on June 20. The minimum temperature for June was 54.5° on the 25th. The average maximum temperature for June was 94.6°, and the average minimum, 65.3°. The mean temperature was 79.9°. The 6-year average mean monthly temperature for June is 75.4°.

Table 1. - Average yield and weight per bushel for 20 winter oat varieties grown in triplicated 1/40th-acre plots at the Rice Branch Station, Stuttgart, Ark., 1936

Variety	C. I. No.	Yield per acre (Bu.)	Wt. per bu. (Lbs.)
Ferguson no. 922 1/	2150	52.3 3/	33.9 3/
Ferguson no. 922 1/	2150	46.8 3/	30.7 3/
Appler 2/	1815	46.5	34.0
Ferguson no. 71	844	46.2	33.5
Nortex	2382	44.7	33.2
Alber	2766	44.7	29.8
Fulghum (winter)	2500	44.5	34.1
Coker's 33-47	3176	43.2	32.4
Fulghum (winter)	2499	42.1 4/	33.9 4/
Custis	2041	41.5	33.1
Coker's 33-50	3167	40.6	33.0
Coker's Norton (strain 3)	2909	39.5	34.7
Arkansas no. 1	----	39.3	33.2
Coker's 33-19	----	38.2	32.4
Lee	2042	37.2	33.8
Appler 2/	1815	35.4	32.4
Coker's 32-1	3026	33.7	34.0
Winter Turf 541-4	----	30.9	28.6
Arkansas no. 15	----	30.2	32.3
Arkansas no. 12	----	26.6	32.1

1/ Different strains of the same variety; 2/ different strains of the same variety; 3/ average of 13 plots; 4/ average of 2 plots.

WISCONSIN

AGRICULTURAL EXPERIMENT STATION, MADISON (Wheat Scab, J. G. Dickson) [July 5]

Dr. M. A. McCall was a visitor at Madison on June 19. A group luncheon was held at the Memorial Union at which were present members of our Division as well as members of the Divisions of Vegetable Crops and Diseases and Forage Crops and Diseases stationed at Madison, and Dr. E. A. Hollowell from Washington.

Dr. G. A. Wiebe arrived at Madison on June 22. He will be with us for an indefinite time assisting in the field and survey work on barley.

Dr. E. R. Ausemus of St. Paul spent June 22 at Madison looking over the field work and discussing research.

Dr. Benj. Koehler, Urbana, Ill., was a visitor at Madison on June 25 attending the alfalfa conferences.

Dr. D. W. Robertson, Fort Collins, Colo., was a visitor on June 27 going over the barley plots and investigations.

Mr. Wm. L. Ingles, Federal Grain Supervisor, located at Milwaukee, spent June 30 at the Madison station in planning the barley survey which will soon begin.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (July 3)

Drought conditions have prevailed in June. Temperatures have been about normal. The maximum temperature was 95°, recorded on June 16; and the minimum 46°, on June 2. The mean temperature was 66.4°, as compared with a normal of 67.5°.

The total precipitation for June was 2.29 inches, of which 1.02 inches fell on June 6. The heaviest shown since that date was 0.4 inch on June 16. The normal rainfall for June is 4.22 inches, a deficiency of 1.93 for this month and 4.2 inches since January 1, 1936.

The drought has severely injured small grain crops in this State except in the southern part. Reports are that winter wheat and other small grains are in fair condition in that area. Winter wheat is ripening prematurely at University Farm, and spring wheat in the 1/40th-acre field plots and rod row trials is heading and is severely injured. The effects of the drought are shown by the firing of the leaves.

Initial infection of stem and leaf rust have been reported in the State but because of the dry weather these are not spreading. It has been difficult to secure an epidemic of leaf and stem rust here at the Station owing to the extremely dry weather. Irrigation and overhead sprinkling is being used to keep the hybrid material growing.

Corn is in good shape and so far does not show the effects of the drought. Pastures and other feed crops need rains badly.

Recent visitors at the station were Drs. McCall and Humphrey of the Washington office.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins)
[July 3]

All experimental grain was harvested during the month and all the field plot seedings were threshed. Yields were much higher than expected. The grain was of excellent quality. Yields for the varietal plots of oats, wheat, and barley are presented in the following tables.

The weather in June was favorable for crops, although feed crops and corn were injured during the latter part of the month. Although small grain matured in May, it was not possible to harvest much until June 1. The clear weather which prevailed from that time to the present was very favorable for harvesting and threshing operations. Most grain in the county was harvested and threshed without any rain on it. As wheat stood until dead ripe because of wet fields in May, the grain shattered to a considerable extent.

Because of abundant rainfall in May the experimental seedings in west Texas were delayed in maturity and so far have not been harvested.

The precipitation in June was only 0.02 inch, which is an all time low record for June. The maximum temperature of 106° equals the all time high record for June. The relative humidity was also much below normal.

Yield of varieties of fall sown oats grown at Substation no. 6, Denton, Texas, 1936 1/

Variety	Texas Sta. no.	C. I. no.	Date fully ripe	Yield per acre	Test weight
				(Bu.)	(Lbs.)
Nortex	9235	2382	May 23	72.2	29
Texas Red Rustproof	1118-69	2503	May 23	76.6	30
Do	1415-12	--	May 22	85.8	29
Do	2805-39	--	May 23	74.9	30
Do	2805-43	--	May 23	74.9	30
Do	6217-43	--	May 23	80.0	30
Appler Rustproof	1401-24	--	May 23	79.2	30
Ferguson no. 922	9400	2150	May 23	75.2	30
Frazier	9234	2381	May 14	59.9	33
Winter Fulghum	15827	2498	May 18	63.8	34
Norton no. 3	18564	2909	May 16	59.9	36

1/ There was no stem or leaf rust.

Yield of varieties of spring sown oats grown in plots at Substation no. 6, Denton, Texas, 1936.

Variety	Texas Sta. no.	C. I. no.	Date fully ripe	Rust		Yield per acre	Test weight
				Leaf	Stem		
				Percent		(Bu.)	(Lbs.)
Nortex	9235	2382	June 6	5	10	65.9	30
Texas Red Rustproof	1118-69	2503	June 6	5	10	74.2	30
Do	1415-12	--	June 6	5	15	69.9	30
Do	2805-39	--	June 6	5	10	68.0	28
Do	2805-43	--	June 6	5	15	68.5	30
Do	6217-43	--	June 6	5	15	71.5	30
Appler Rustproof	1401-24	--	June 6	5	10	71.4	30
Ferguson no. 922	9400	2150	June 6	5	10	69.9	30
Frazier 1/	9234	2381	May 30	15	10	41.6	34
Fulghum (winter)	15827	2498	June 2	35	25	55.7	34
Norton no. 3	18564	2909	June 1	45	40	54.2	35

1/ 20 percent shattered.

Yield of winter wheat varieties grown at Substation no. 6, Denton, Tex., 1936

Variety	Texas Sta. no.	C. I. no.	Date fully ripe	Loose smut	Lodging	Rust		Yield per acre	Test weight
						Leaf	Stem		
				Pct.	Pct.	Pct.	Pct.	(Bu.)	(Lbs.)
Denton	9236	8265	May 31	2	13	5	6	40.6	59
Mediterranean	3015-81	10086	May 28	4	4	9	9	37.0	59
Do	3015-105-1	11587	May 30	T	1	T	24	42.8	61
Do	5933-20	10085	May 27	2	5	5	T	34.2	58
Do	5933-23	11525	May 27	2	24	T	15	34.1	59
Do	5933-34	11526	May 25	2	10	6	1	34.4	58
Do	5933-38	--	May 26	2	8	10	8	35.2	58
Sutton	15832	10053	May 28	1	23	26	30	37.7	58
Clarkan	20400	8858	May 29	0	0	30	25	45.6	62
Kawvale	12577	8180	May 29	0	1	3	6	39.9	58
Fulcaster	2082	6471	May 31	0	6	51	21	41.3	59
Early Blackhull	15838	8856	May 20	0	8	35	1	44.1	61
Blackhull	7172	6251	May 31	0	13	58	4	47.2	61
Tenmarq	12578	6936	May 29	0	16	24	9	48.0	60
Kanred	11963	5146	May 30	0	49	60	3	46.2	60
Kharkof	16830	1442	June 1	0	36	55	T	41.5	59
Nebraska no. 60	15835	6250	June 2	T	13	60	9	43.0	58
Turkey selection	20374	10016	May 27	T	0	69	3	44.9	59
Quivira	15833	8886	May 24	0	10	13	1	46.4	61

Yield of fall sown barley grown at Substation no. 6, Denton, Tex., 1936.

VARIETY	Texas Sta. no.	C. I. no.	Date fully ripe	Loose smut	Yield per acre
				Pct.	(Bu.)
Tennessee Winter	15825	--	May 14	2	33.8
Do	15826	3545	May 14	2	27.3
Do	18561	--	May 15	5	33.3
Tennessee Winter (Winklemann)	--	--	May 20	0	23.8
Wisconsin Winter	15839	2159	May 14	1	30.5
Finley	12576	5901	May 21	T	21.7
Bailey	--	5902	May 19	T	29.7
Smith selection S-31-51	--	--	May 20	T	30.0
Smith selection S-31-62	--	--	May 20	0	35.4
Harlan hybrid selection 1-31-79	--	--	May 20	1	35.3
Harlan hybrid selection 1-31-84	--	--	May 19	2	35.5

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (July 20)

Hot dry weather prevailed during the last half of June. Sorghum planting is about completed except for some of the short season varieties. Most plantings have emerged to good stands but it is a question of how long the seedlings can survive without rain.

On 10 of the 15 days the maximum temperature was 100° or above, the maximum being 106° on the 26th. The minimum temperature for the last half of June was 60° on the 24th. There was no precipitation. The total for June was 2.37 inches.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (July 2)

Harvesting of the winter cereals was completed on June 18. The last of the spring grains will be cut on July 2. All of the nursery material is under cover and will be threshed, perhaps during the week of July 6, or as soon as bunt resistant plant selections have been made from the several crosses in the bunt nursery.

The late seedings of the rate-and-date-of-seeding experiment with wheat produced the highest yields, as was also true in 1935. In the varietal plots the late varieties outyielded the earlier varieties.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Corn Breeding, A. M. Brunson) (July 1)

Corn is needing rainfall very badly. Early fields already are beginning to tassel, and unless relief comes in the next few days will suffer badly. Grasshoppers are worse in many localities than they have been for many years, and with the cutting of small grain and drying up of pastures they are a serious menace to row crops. Chinch bugs are reported as being very bad in some parts of the State but are relatively unimportant in Manhattan.

Harvest is completed and threshing is well under way; some abnormally high yields of wheat are being reported. Stem rust has developed rather generally, but owing to the lateness of the infection and the dry weather until harvest, did relatively little damage.

Oats are fairly satisfactory around Manhattan but are reported as being poor in most of the State. Oat smut was unusually prevalent and serious this year.

The second crop of alfalfa is in a very unpromising condition because of dry weather and grasshopper injury.

The rainfall at Manhattan for June totaled 0.75 inch or 3.85 inches less than the 75-year normal precipitation. The mean temperature for the month was 79.7°, or 5.6° above normal. The maximum of 108° was recorded on the 19th and 26th, and the minimum of 47° on the 3rd.

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (July 8)

The wheat harvest in Kansas was a week to 10 days earlier in 1936 than in 1935. This was due principally to exceedingly hot dry weather in June. The rainfall for the month at Manhattan was 0.75 inch, while the normal for June is 4.6 inches. Fortunately temperatures remained fairly low until the middle of June and that factor, combined with abundant rain in May, gave winter wheat an opportunity to fill very well. As a consequence, the yields have been considerably above expectations in many parts of the State and the quality of the grain seems to be excellent. Yields in excess of 40 bushels per acre have frequently been reported in the past two weeks and several reports of yields above 50 bushels have been noted.

Harvesting began in the rust nursery on June 20 -- eight days earlier than in 1935. Both winter and spring wheats have been harvested and threshing is now under way.

Excellent notes were obtained on both leaf rust and stem rust in the rust nursery this year. Hypodermic inoculations of both rusts in susceptible border and check rows in April and May established excellent infection centers. A total of 5.78 inches of rain in May aided both rusts to spread uniformly throughout the nursery. By June 10 leaf rust had reached its peak and by June 15 stem rust was at its maximum. The latter rust developed so heavily and rapidly that susceptible varieties were killed by it long before maturity and the yield from many rows was practically nothing. Resistant selections, on the other hand, are yielding normal quantities of good plump grain. The combination of exceedingly heavy stem rust infection and very hot dry weather prevented most of the stem rust from advancing to the telial stage. Most plants matured very rapidly or were killed while the rust was yet in the uredial stage.

Among the winter wheats, many selections of Hope x Kawvale, Mediterranean x Hope, Hope x Hussar, Red Rock x Hope, Kawvale x Marquillo, Oro x Marquillo, and (H-44 x Minturki) x Minturki exhibited promising resistance to both leaf rust and stem rust.

The drought which began early in June is now becoming acute and row crops are beginning to suffer. Corn and sorghum must have rain very soon if they are to make a crop. Grasshoppers are very abundant and in some localities have already destroyed much of the corn. Chinch bugs did much damage in southeastern Kansas in June.

Recent Station visitors were Dr. H. B. Humphrey, Mr. T. R. Stanton, Dr. M. T. Jenkins, Dr. E. C. Stakman, Dr. R. U. Cotter, Mr. Wallace Butler, and Mr. W. J. Sando.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (July 1)

The weather in June was characterized by lack of moisture and temperatures above normal. This condition following a warm, dry May caused winter wheat to ripen unusually early. Heading was general about May 20, and harvest was in full swing on June 20. By the last of June all the varieties in field plots, as well as most of the regular nursery rows, were out. The later planted material and the space-planted hybrid rows are ripening slower. Later varieties probably will be badly shriveled.

Stem rust was present in some spots in the nursery but the infection never became general. Had there been more moisture, it is easy to believe that considerable rust might have developed. Very little leaf rust was present.

The area immediately surrounding Lincoln seems to be drier at this time than most other parts of the State. South and east of the city the condition of the wheat gets much better. In the southeast corner of Nebraska wheat growth was heavy and considerable stem rust developed. There was considerable lodging on the bottom land in this area. On a short drive yesterday it was noticed that threshing was in progress a few miles south of town.

Among Station visitors in June were Messrs. H. H. Laude and C. O. Johnston from Manhattan, Kans.; Messrs. J. A. Clark and T. R. Stanton from Washington; and Dr. F. R. Immer from St. Paul, Minn.

A visit was made to North Platte on June 25. There the wheat on fallow was still green and looked well, while on corn ground there was some burning taking place. The spring grains on the Station were also in good condition. The small grains should be ready to harvest soon after July 5.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (July 1)

The drought in this locality is more severe than at this time in any previous year on record for over 60 years, even worse than in 1934. The precipitation for the last half of June was 0.28 inch. This was not sufficient to germinate more than a trace of the seed which has been in the ground since early in May. The total precipitation in May and June was less than half an inch and not enough occurred at any one time during this period to be effective. The total precipitation for the first six months of 1936 was only 3.40 inches, which is about 5 inches below the average for the previous 22 years.

Wheat, oats, and barley in varietal plots headed at an average height of less than 10 inches, but a large percentage of the plants dried up without heading. The crop is far too short to harvest with the binder and probably none of it will produce enough grain to be worth harvesting.

The wheat in nursery rows and increase plots has headed out considerably taller than in the varietal plots and may be worth harvesting if filling of the heads is satisfactory.

The flax that emerged soon after seeding is in full bloom. Yield data, if any, will be of little value because germination of seed was fractional and irregular.

The maximum temperature for the last half of June was 106° on the 24th and the minimum 49° on the 18th.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (July 1)

The cereal nursery at Fargo still has a healthy appearance, although a few hot days without rain would injure it seriously. The yield nursery is completely headed and crossing is well along - about 10 days earlier than usual. A satisfactory seed set is being observed in the crosses. No rust has yet been seen in the field.

The sprinkling system has been very useful in watering certain of the inheritance material.

The precipitation at Fargo in June totaled 0.50 inch, which is about 3 inches short of the normal. The total since January 1 is 3.51 inches, or 5.25 inches short of the normal. This makes the drought very severe. Farm fields, though not so good as farther north, are much better than toward the west. Even so they are generally very poor, except in a few spotted areas which have received showers. The temperatures in June have been generally favorable for small grains except for several very hot days about the 20th.

The Langdon nursery was sown deep and the snow moisture caused germination to be fairly uniform. No rain fell till the first of June, when 1.75 inches was recorded. Since that time the Langdon experiments have made fair growth but are again badly in need of rain. Considerable precipitation will be needed both at Fargo and Langdon to permit the grain to fill properly.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (July 1)

Hot, dry weather has prevailed during the latter half of June. The maximum temperature for the month was 109° on the 24th, making a new record for June at this station. The temperature was above 100° on several days and hot winds have been frequent during the past two weeks.

The precipitation for June was 0.92 inch, occurring in small showers. The precipitation for the first six months of 1936 was 3.30 inches, or about 5 inches below normal. The moisture deficit for the past 10 months has been 6.70 inches, the precipitation during that time being but 4.60 inches.

These conditions have made the present drought the worst experienced at the Substation since its establishment 30 years ago. Conditions at the end of May this year were similar to those in 1934 at that time, but the rainfall for June this year was about 3 inches less than in June 1934.

Many grain fields are being pastured, being too short to be cut for hay. Some will be cut for hay but few in this vicinity will be worth harvesting. Some fields in the eastern part of this county were benefited by local rains and may make fair yields. Russian thistles, which aided the feed situation in 1934, will be a near failure this year unless rains come in the next few weeks.

Replicated cereal field plots will be rather short to harvest with a binder. Two replications of spring wheat, oats, and barley were sown on fallow and these probably can be saved for threshing by harvesting with a mower having a buncher attachment. Some of the plots on cornland, especially barley, may be too light for harvesting. Field plots of flax, proso, and corn seeded in May did not emerge till about June 22 because of dry soil conditions and will not give yields of value.

The spring nursery sown on fallow will be harvested for yields. It was necessary to plow under the winter nursery ground as the stand was too thin to save. Winter wheat field plots are very light.

Valuable data will again be obtained from the bunt nursery, as susceptible varieties are badly smutted and many hybrid strains are free from bunt.

The experiment with light-weight seed of Ceres wheat shows differences in height of plant, length of heads, and plant vigor, depending on the weight of nine samples of seed sown, which varied from 39 to 60 pounds.

Groups of farmer visitors from four counties in the Slope area, as arranged by the Extension Department of the North Dakota Agricultural Experiment Station, have visited the Substation on separate days the past week and have shown keen interest in the various experiments. Farmers from several other counties are expected this week.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, E. C. Coey) (July 1)

The weather in June was very warm and dry; the precipitation of 1.74 inches was 1.20 inches below the 27-year average of 2.94 inches. It was recorded on 12 days, not more than 0.60 inch falling on any one day. These frequent light showers did not do much good.

Grain crops are going to be very short regardless of any favorable growing condition during the next two months. Notes have been taken on full heading of wheat, barley, and oats. Redwing flax is in the last 10th-blossom stage and the other varieties are developing blossoms rapidly.

Rain will greatly relieve the feed situation in that it will revive the pastures and help corn and other forage crops.

The mean temperature of 64° was the highest recorded for June since 1919. The maximum was 101° and the minimum, 32°.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (July 1)

Crop prospects have greatly improved during the month of June. Hot, dry weather in the early spring caused plants to appear wilted, although there was ample moisture in the subsoil. Plant height also was greatly below normal on June 1. Cool weather and ample rainfall during the first half of June gave crops a new lease on life and satisfactory yields are now almost assured.

The precipitation for June was 2.25 inches, compared with a normal of 1.10 inches. The maximum temperature was 99° on June 22 and the minimum, 38° on June 19.

Among recent visitors at the Station were Dr. M. A. McCall and Mr. B. B. Bayles, of Washington, D. C., and Mr. C. A. Suneson, of University Farm, Davis, Calif.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (July 1)

The winter wheat nursery, as well as commercial fields in northern Utah, promises a very low yield. In general, stands are poor and there is little tillering. In addition to thin stands many fields show considerable smut. In one section of Cache Valley three adjoining fields showed great contrast in amount of smut. One field showed only a trace of tall smut, a second field showed an estimated 80 percent of tall smut, while a third field contained approximately 50 percent of short smut of the heavy tillering type common to this section. All these fields contained the Turkey type of wheat, but the varietal names have not yet been learned. A rather close survey revealed wide variations in amounts of smut, with many fields almost smut free and few containing any of the short Tilletia tritici form.

Spring seeded grain under irrigation has grown well and promises good yields. All small grains were headed by June 26. Corn, grain sorghums, and flax appear especially promising this season. By July 1 corn had reached a height of approximately 5 feet.

Cool, wet weather prevailed during the first week of the month followed by continuous warm, clear weather. Record hot temperatures came over the State during the last week of June, but have lowered following light showers.

The precipitation for the month totaled 0.66 inch. The total evaporation was 4.26 inches. The mean temperature was 65.8°; a maximum temperature of 94° was recorded on June 14, 22, 23, and 27.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (July 1)

Weather conditions in May and June were favorable for the seeding and growth of rice in California. In general, the rice crop looks very well. The stands and growth of rice on the Station are considerably better than usual.

Considerable concern is being expressed regarding the increased acreage of rice in California. This year's seedings approach 130,000 acres as compared to 96,000 acres in 1935. Marketing plans are being discussed whereby the surplus may be disposed of.

The average maximum temperature for June was 86.9° and the average minimum temperature, 57.5°. These temperatures are near the normal. On June 7 there was recorded 0.85 inch of rain. This much rain at such a late date is unusual. Some damage was done to the hay and fruit crops.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and ~~Diseases~~
Bureau of Plant Industry, U. S. Department of Agriculture
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Vol. 28 No. 11

July 25, 1936

Personnel (July 11-25) and Field Station (July 1-15)

PERSONNEL ITEMS

Dr. E. G. Bayfield, cereal chemist and associate in agronomy at the Ohio Agricultural Experiment Station, who was recently appointed a collaborator with this Division, came to Washington on July 12 for a conference concerning the establishment of a soft wheat laboratory.

Dr. M. T. Jenkins returned on July 19 from a week's trip in Virginia, North Carolina, South Carolina, and Georgia to confer with officials of State agricultural experiment stations and personnel of the Division relative to corn breeding experiments.

Dr. S. C. Salmon left Washington on July 15 for an extended trip in Iowa, Minnesota, North Dakota, Montana, Wyoming, Nebraska, Kansas, Colorado, Oregon, Idaho, Utah, Washington, Nevada, and California in the interests of the weed research program.

Dr. and Mrs. R. O. White, of the Welsh Plant Breeding Station, Aberystwyth, Wales, were visitors in the Division on Friday, July 24. Dr. White is particularly interested in forage-crop and cereal-crop research.

RECENT PUBLICATIONS

Factors Influencing Infection of Barley by Loose Smut. R. W. Leukel. Phytopathology 26(7): 630-642. July 1936.

Studies on Growth in Rice. C. Roy Adair. Jour. Amer. Soc. Agron. 28(7): 506-514, figs. 1-3. July 1936. (Co-operative investigations of the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

Relation of Stomatal Function of Wheat to Invasion and Infection by Leaf Rust (Puccinia triticina). Ralph M. Caldwell and G. M. Stone. Jour. Agr. Research 52(12): 917-932, figs. 1-4. June 15, 1936. (G-1013). (Cooperative investigation of the Division of Cereal Crops and Diseases and the Botany Department of the Purdue University Agricultural Experiment Station.)

Inhibiting Effect of Sulphur in Selenized Soil on Toxicity of Wheat to Rats. Annie M. Hurd-Karrer and Mary H. Kennedy. Jour. Agr. Research 52(12): 933-942, figs. 1-4. June 15, 1936. (G-1014). (Cooperation between the Division of Cereal Crops and Diseases and the Foods and Nutrition Division of the Bureau of Home Economics.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Breeding, N. E. Jodon) (July 15)

Five inches of precipitation have been recorded so far in July in contrast to only 0.13 inch in June. Rains occurred on 9 of the first 15 days; one storm was accompanied by wind and some hail. Apparently most of the showers were of limited extent. On the whole, growing conditions have been ideal, the maximum temperatures ranging from 82° to 95°, and the minimum from 71° to 79°.

Early Prolific seeded in March was fully headed by the 10th of July. Farmers' fields have improved in appearance and have largely overcome the effects of the unfavorable conditions that prevailed in the earlier part of the season. The leaf spot disease is now widely distributed but is not serious. 'White tip' appeared to a limited extent about the first of July.

The nursery is in good condition, except for the damage done by muskrats the first week of July. The plants were cut close to the ground and the tender submerged parts eaten. Depredations occurred on several nights and did not cease until three muskrats were caught.

Colusa is beginning to head in the April seedings. Some hybridization work has been started.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (July 15)

The drought in this section was broken by general rains the first week in July. The rainfall on July 1, 2, and 3 at this Station was 8.59 inches. Although this was more than was obtained in many parts of the State, the drought was alleviated throughout all of Arkansas.

Soybeans, cotton, and late-planted corn in this section are doing very well since the rain. Much of the rice on commercial fields is very grassy, although a few fields look very well. A small commercial field of Lady Wright rice, sown on March 17, was reported to be heading on July 6.

The following members of the staff of the College of Agriculture and of the United States Department of Agriculture, Fayetteville, have been recent Station visitors: Doctor W. A. Thorp, E. M. Cralley, B. P. Johnson; L. M. Humphrey, E. L. Nielson, and E. C. Tullis. Dr. O. D. Smith, instructor in agriculture at State Teachers College, Conway, Ark., and a group of his students visited the Station on July 14.

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) (July 22)

Helminthosporium leaf spot of rice is increasing in severity at the Rice Branch Experiment Station at Stuttgart, Ark. It appears to be much more prevalent than at this date in past years. Leaf specimens were also received from C. R. Adair from the vicinity of Weiner from which Helminthosporium oryzae and Entyloma oryzae were isolated. A sheath and leaf spot has been prevalent this year as well as last from which Pythium nagaii has been consistently recovered.

MISSOURI

AGRICULTURAL EXPERIMENT STATION, COLUMBIA (Corn Breeding, G. F. Sprague) (July 15)

The weather for the first half of July has continued dry and hot. The rainfall has been subnormal for every month this year. For April and June it was the lowest ever recorded for these months. The cumulative moisture deficit to date is 13.02 inches. Maximum temperatures have been lower and daily mean temperatures consistently higher than during the drought of 1934. July 15 is the 11th consecutive day with temperatures of 100° or higher. The maximum on July 14 was 109°.

Pastures and hay meadows are dry and brown. Alfalfa and red clover have made little growth since the first cutting. Early planted corn is badly fired. Pollen shedding is practically complete and silk emergence very scattered. Later planted field corn would still be materially benefited by rain. Reports indicate that the outlying test plots at Sikeston, Jasper, and Maryville are still in fair condition.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (July 18)

Harvesting of small grain at University Farm is almost completed. Grain is being cut in most parts of the State.

Grains in the nursery and plot experiments at the SE. Experiment Station at Waseca are in fair condition. At Morris, the stands are thin but the heads of wheat, oats, and barley are well filled and the grain seems to be of good quality. The spring grains at University Farm are severely injured. Yields and the grain produced will be very light.

Small grains have been prematurely ripened by high temperatures and lack of rainfall. Winter wheat grown in the southern part of the State will produce a very good crop. Spring cereals in this area will produce a fair crop.

Corn has been severely injured by the continued drought.

The weather during the first half of July has been hot and dry. Temperatures of 100° or above were recorded 7 days during the latter part of this period; a maximum of 107.8° was recorded on July 14. The minimum temperature during this period was 56°, recorded on July 2. The rainfall was 0.06 inch recorded as 0.01 inch on July 2 and 0.05 inch on July 14.

Station visitors were Mr. A. C. Dillman and Drs. H. A. Rodenhiser and G. A. Wiebe.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) [July 18]

The first half of July was dry and hot. The sorghums wilt and curl badly during the day but seem to recover by morning.

Thinning to stand and trimming of plots are completed. Sorghums planted July 1 and 10 emerged to stands and appear to withstand the drought and heat as well as the older plants. Rain this month would mean a fair sorghum crop but without rain there is no chance to mature any sorghums or broomcorn. Even weeds have not made good growth this season.

The maximum temperature for the first half of July was 108° on the 15th and the minimum 63° on the 2nd. There was no precipitation.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Corn Breeding. A. M. Brunson) (July 15)

Weather conditions at Manhattan so far this summer have been more severe than up to this date in 1934. On 21 of the last 30 days official maximum temperatures of 100° or more have been recorded. The highest was 111° on July 14. No measurable precipitation has been recorded since a light shower on June 16.

Corn is suffering badly from heat and drought and in many localities is being injured very seriously by grasshoppers. Sorghums are rolling badly but have not been injured as yet. The second crop of alfalfa is almost a negligible quantity because of drought and grasshoppe

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (July 15)

There was no measurable rainfall at Hays during the first 15 days of July. The precipitation for June was only 0.71 inch. Temperatures have frequently ranged above 100° during the last 30 days, the maximum being 113°. Even so, row crops have made satisfactory growth on stored moisture from an abundance of rainfall in May. The sorghums will reach the critical fruiting period around August 10, when additional moisture will be needed for seed production. It is doubtful if the corn can hold out that long without rain. Sown feed crops are still standing the drought well.

The chief concern just now is the damage done by grasshoppers in many areas in Kansas. The writer made a hundred mile inspection trip yesterday and found many fields of corn of a hundred or more acres where only 25 to 40 acres were left in the center. Small fields of corn were frequently entirely devoured by grasshoppers. Fields surrounded by grass land or pastures were the most completely devoured. So thoroughly have the stalks been devoured that not enough of the stubs remain above the ground to more than indicate where the plants grew. Fields for the most part are clean with the furrows still open. In general, farmers will leave the furrows open until rains come and prepare the land as fallow for wheat.

Very little damage has been done by grasshoppers to the sorghum crop regardless of whether planted in rows or as feed. This crop will have a distinct advantage over corn over a considerable area in this State because of its ability to evade drought and less susceptibility to insect injury.

Wheat yields were for the most part satisfactory considering the season. The best yields were obtained from the early types of wheat, and from seedings not made too late. The threshing has been completed on the cereal project with yields running from 15 to 30 bushels, depending on variety and date sown. The straw this year is the brightest and cleanest for a number of years and farmers made greater use of binders and headers this season in order to have the straw available for feed next winter.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (July 16)

The wheat, oats, and barley and most of the wheat varietal plots have dried up without setting a significant amount of seed. Some of the wheat varietal plots have set a little seed and some seed of varieties of which adequate supplies are not available has been salvaged for seeding next year.

The wheat in nursery rows and increase plots has ripened prematurely in response to the extreme heat and drought but has set a surprising amount of seed. It is remarkable that under such conditions of prolonged extreme heat and drought wheat has not burned to a crisp before maturity. Heads of late varieties still remain green. The earliest rows were harvested July 11 and most of the wheat nursery has now been harvested.

There is very little flax to harvest in nursery rows. Plants of some early strains have set a good crop of bolls and appear very promising.

Mr. J. Allen Clark and Mr. A. C. Dillman visited the station early in July.

The drought, after exceeding all previous records by the end of June, continued unabated throughout the first half of July. No precipitation was recorded during this period. All previous records for high temperature were broken. On July 6 a temperature of 115° was recorded, which exceeded by 5° the record previously established in July 1921. Temperatures over 100° were recorded on 9 of the 15 days and on 8 consecutive days from July 5 to 12.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (July 17)

The extremely dry and hot weather prevailing in June has continued thus far in July. The mean temperature for the first half of the month was 82° or about 12° above the normal for July. The maximum for the month and for all time at this station was 114° on the 6th. The mean maximum for the week beginning on the 6th was 108°. The minimum was 49° on June 1. The precipitation for the first half of July was 0.26 inch, occurring in several small showers.

Local thundershowers have benefited certain localities in this part of the State but no general rains have occurred this year so far.

I do not know of any grain fields on farms in this locality that will be harvested for threshing. Farms 30 to 40 miles east of Dickinson report a fair prospect for crops, as local rains occurred there early in the summer.

Field plots of cereal varieties at this station grew too short to be harvested with a binder. Plots of spring wheat and a few plots of oats and barley were harvested with a mower having a buncher attachment with a galvanized iron bottom to hold the short straw. The nursery is being harvested in the usual way. Most of the crop is being harvested somewhat green to save it from the grasshoppers whose numbers are renewed with each hot wind, despite the frequent spreading of poisoned bran. All grain fields in this vicinity are being pastured.

Dr. C. E. Leighty visited the station on July 6 and Drs. G. A. Wiebe and H. A. Rodenhiser were here July 14 and 15.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (July 15)

Because of unfavorable temperatures and light precipitation, the condition of experimental work and crops generally is much less promising than at the beginning of the month. Temperatures were above 100° on 8 consecutive days, the maximum being 113.6°. The precipitation has been negligible.

The early sown yield experiments are ripening and probably will produce yields of 10 to 15 bushels per acre, but the grain of many varieties will be four or five pounds low in test weight. Later sown experiments, which were heading during the hot period, will practically be killed from the heat, and the pollen on those heads not killed outright is generally sterile. New hybrids made before the hot spell will produce a high percentage of seed set.

Conditions at Langdon are similar to those at Fargo, except that the subsoil moisture is less, but one or two light showers have fallen there.

Stem rust is present but very light and it will not be possible to take comparative rust notes.

Mr. J. Allen Clark and Dr. H. A. Rodenhiser were recent Station visitors.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (July 17)

The cooperative winter wheat nursery and spring barley varieties at Walla Walla were harvested and threshed July 15. The yields and test weights of the wheats were above average, as shown by the enclosed table.

In general, the fall and spring sown wheats are in very good condition; above normal yields are expected in nearly all parts of the main wheat producing areas of the State. All these areas received abundant June rainfall, accompanied by cool temperatures which lasted until the second week in July.

Harvesting operations were begun about two weeks ago in the earliest sections. A field of Ridit on the college farm is being bound today. However, "combining" operations of winter wheat will not be expected for another two weeks in neighboring fields.

Average yield of winter wheat varieties grown in three 3-row plots at Walla Walla, Wash., 1936

Variety	Station Number	C.I.No.	Average	Test Weight Per Bushel
				Pounds
Hybrid 128 x Fortyfold	3147	11700-1	59.7	59.2
Hymar	2876	11605	57.2	59.2
Hybrid 128 x White Odessa N.951	2871	11607	56.3	60.0
Hussar x Turkey Hybrid 128	2583	--	56.0	61.6
Fortyfold x Hybrid 128 N. 942	2869	--	55.5	59.4
Hybrid 128 x Martin N. 955	2935	11606	55.3	59.8
Hybrid 128	592	4512	55.3	60.5
Hybrid 128	592	4512	54.8	60.1
Albit	2517	8275	54.7	59.1
Requa White	2820	11554	54.7	61.4
Hybrid 128	592	4512	53.8	60.1
Triplet	597	5408	53.0	61.2
Triplet x Oro (awned)	3083	11695	52.7	61.7
Turkey x Hussar Hybrid 128	2883	--	52.5	61.1
Triplet x White Odessa	2885	11688	52.0	59.9
Jenkin	526	5177	51.5	60.7
Triplet x Oro (awnless)	3082	11694	50.8	61.0
Oro	2550	8220	50.2	62.3
Utah Kanred	2933	11608	50.2	62.1
Hard Federation x Martin M 6	2937	11692	50.2	60.5
Hybrid 128	592	4512	50.0	60.0
Kharkof	1858	1442	49.3	61.7
Improved Fortyfold	3151	--	49.2	59.4
Triplet selection R4-29	3084	--	48.7	60.6
Rio	2764	10061	48.0	62.3
Relief	2809	10082	47.8	62.0
Hard Federation x Martin M2	2936	11691	47.8	59.9
Kharkof	1858	1442	47.7	61.7
Genro	2868	--	47.0	61.0
Ridit x Utah Kanred	3146	11599	47.0	62.4
White Odessa x Hard Federation M2	2939	11690	47.0	60.6
Fortyfold x Hybrid 128, N.939	2870	--	46.7	59.3
Golden	2675	10063	46.7	58.8
Kharkof	1858	1442	46.2	61.8
Hussor x selection C	2877	--	45.5	61.0
Hussor x selection C	3149	--	45.2	61.0
Kharkof	1858	1442	45.2	61.7
Ridit x White Odessa	3150	--	44.7	60.4
Yogo	3152	8033	44.0	61.7
Rex	2825	10065	43.8	60.6
White Odessa x Hard Federation M1	2938	11689	43.8	60.8
Ridit x Utah Kanred	3080	11597	43.7	62.0
Fortyfold x Federation 8247-1	2828	11693	43.3	58.6
Federation	1247	4734	43.0	59.7
Turkey	326	6175	43.0	62.0
Fortyfold	2438	4156	41.7	60.2
Arco selection	2865	11498	40.3	57.7
Ridit	2324	6703	39.7	61.3

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 August 10, 1936 No. 12

Personnel (July 26- Aug. 10) and Field Station (July 16-31)

PERSONNEL ITEMS

Mr. H. S. Garrison visited the Division on July 30 while on a vacation trip.

Mr. Jenkin W. Jones left on August 5 to look over cooperative rice experiments and breeding nurseries in Arkansas, Louisiana, Missouri, Texas, and California. He will study hybrid material and make selections and will confer with officials of the agricultural experiment stations in the States named on cooperative rice experiments.

Dr. J. H. Martin spent two weeks beginning July 26 in Tennessee, Louisiana, Texas, and Oklahoma making observations on sorghum experiments and conferring with officials of agricultural experiment stations on cooperative work with sorghums.

Dr. G. K. Meister, Director of the Saratov Experiment Station, U. S. S. R., and vice president of the Lenin Academy of Agricultural Sciences, was a Division visitor the second week in July. Mrs. Meister, who accompanied him as interpreter, is secretary to the vice president of the Lenin Academy of Agricultural Sciences. Mr. A. S. Essipov, Chief of the State Plant Breeding Fund of the Soviet Peoples Commissariat of Agriculture in Moscow, also was a member of the party. They are making an extended tour of the United States.

Dr. G. A. Wiebe returned to Washington on August 5.

RECENT PUBLICATIONS

The Carotene Content of Wheat Varieties in the Pacific Northwest. C. C. Fifield, S. R. Snider, Harland Stevens, and Ray Weaver. Cereal Chem. 13(4): 463-469. July 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Grain Division of the Bureau of Agricultural Economics.)

TREASURY DEPARTMENT
Procurement Division
Branch of Supply

August 1, 1936

Circular Letter No. 174

TO THE HEADS OF ALL DEPARTMENTS AND ESTABLISHMENTS:

SUBJECT: Tires and Tubes, Contracts for

The Procurement Division is now issuing proposals covering Classes 8 and 49, Tires and Tubes, on which contracts will become effective at the close of the present contract period which extended from May 1 to September 30, 1936. The new contracts will cover the period October 1, 1936, to March 31, 1937.

As heretofore, these contracts will cover the requirements of all departments and independent establishments in the District of Columbia and all governmental field services within the continental limits of the United States except Alaska and the Panama Canal Zone, as well as the requirements for the Government of the District of Columbia.

No contracts will be made by the departments, independent establishments, or the Government of the District of Columbia, for tires and tubes of the sizes and kinds listed in the contracts to be consummated by the Procurement Division.

H. E. COLLINS

Assistant Director of Procurement

N O T E

All tires and tubes must be ordered from the Washington Office except in cases of extreme emergency. All emergency purchases must be fully explained.

H. S. SMITH
Junior Administrative Assistant

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Aug. 4)

Weather conditions in July were about normal. The maximum temperature was 95° and the minimum 69°. The total precipitation of 6.57 inches was recorded on 12 days; about two-thirds of it fell on two days and was sufficient to replenish, with water, the rice fields, streams, and lakes over a large area in southwestern Louisiana.

As a whole, the commercial rice crop is less diseased at this season than in any year since about 1928. Leaf spot diseases that have been so prevalent in past years in this part of the State are abundant in a few restricted areas only.

Because of delayed germination and submergence due to unfavorable weather conditions at seeding time, many commercial fields of rice are badly infested with red rice and other weeds. This condition will result in reduced yields.

A few fields of early rice have been harvested and one lot of new rice has been sold. The harvesting of early maturing varieties will be rather general within the next week or 10 days.

Work on the Station is progressing satisfactorily. Early rices in the varietal plots are heading, and some early seeded varieties in the date-of-seeding plots are nearly mature.

Dry cultivated crops are in good condition, with indications of satisfactory results. Insects are not so numerous as usual. Cotton has been damaged very little by the boll weevil.

Station visitors in July included groups of instructors and students from Ohio State College and the Louisiana State University, Dr. J. H. Martin, of the Division of Cereal Crops and Diseases, and Dr. C. T. Dowell, Director of Louisiana Experiment Stations.

IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Corn Breeding, L. A. Bryan) (Aug. 1)

The prospect for a good corn crop was excellent on July 1. With 0.09 inch of rain in July and a continuous period of 14 days (July 4 to 17) when temperatures were 100° or above, that prospect has faded to one of probably the lowest yield since 1881. The season differs from that of 1934 in that the different sections of the State vary from a nearly complete failure to only a fair crop in the best sections, whereas in 1934 several counties in the north-central and eastern part had high yields. Fortunately, another difference between 1934 and 1936 is that the hay and small grain crops were generally good this year.

The corn-pollinating season began about July 10. A large number of pollinations have been made but considerable doubt exists as to the outcome.

We have been very fortunate in having 99 of the better inbred lines planted on an area of nearly 2 1/2 acres, where it has been possible to provide overhead irrigation. The plants of nearly all the lines in this area have made normal growth. The water was turned on nearly every day except Sunday during the entire month. It apparently exerted considerable cooling effect, as most of the lines produced a normal amount of pollen with very few tassels burning. We do not yet know how successful the pollinations have been but expect them to be fairly satisfactory.

The plants on the irrigated area present a picture markedly in contrast to that on the Agronomy Farm where most of our plantings were made. There many tassels were burned, shoots were slow in emerging, and the silks on many plants appeared from behind the sheath without the usual husk covering and were lost.

The later plantings are getting by without much burning, as the last two weeks have been much cooler. Only two days, July 25 and 26, during this period were very damaging.

Probably four or five fields of the Iowa Corn Yield Test have been lost although direct word to that effect is not available.

AGRICULTURAL EXPERIMENT STATION, AMES (Crown Rust of Oats, H. C. Murphy) (Aug. 3)

Despite a deficiency of more than six inches of rainfall during the growth period for oats and a record-breaking heat wave during the ripening period, satisfactory progress was made in the oat-breeding program in Iowa during 1936. Many of the superior smut- and rust-resistant hybrid selections that have been outstanding for yield and quality in previous years, when their disease resistance gave them a definite advantage, were even better in this unfavorable year when their disease resistance gave them no particular advantage. In addition to their high resistance to the rust and smuts, certain of these selections appear to be highly tolerant to drought and heat. As a group, selections from the crosses Victoria x Richland, Iowa 444 x Markton, and Markton x Rainbow were the most outstanding, although certain selections from crosses of Bond x Green Russian sel. (C. I. 2344), etc. appear very promising. The yield, bushel weight, and quality of grain from many of these selections were striking in comparison with those of Iogold, a superior standard variety.

May was abnormally hot and dry at Ames. The total precipitation was 2.04 inches, which is 2.21 inches below normal. Conditions in June were somewhat better, the precipitation being 3.81 inches (4.24 normal), although 2.41 inches of this occurred on June 1 and 2, and the last 10 days of the month were hot and dry. Only 0.09 inch of rainfall was recorded at Ames in July, while the normal precipitation for the month is 3.71. Combined with this severe drought was a record-breaking heat wave with continuous maximum temperatures of 100°, or above, during the period from July 4 to 17. Except for the five days July 20, 21, 29, 30, and 31, the maximum temperature was 90° or above during the entire month.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (Aug. 3)

The weather has continued dry and hot during the latter half of July. The temperatures were not so high as during the first half of the month. There were two days, July 16 and 17, with temperatures of 100° or above. The minimum temperature recorded was 48° on July 29. This was the driest July on record, there being only 0.1 inch of rain during the entire month.

Harvesting of all small grains has been completed and threshing is now in progress. One increase field of Thatcher wheat at University Farm has been threshed. It yielded 10 bushels per acre and had a test weight of about 46 pounds per bushel. All spring grains grown at University Farm will be badly shriveled.

Pastures and meadows are dry and brown in the area where drought conditions are most severe.

Corn in the southern part of the State is in fair condition. Small grains are yielding relatively well in this section.

Stem rust did not develop under natural conditions but a satisfactory epidemic was obtained by artificial inoculation with the rusts and by irrigating the plants.

Station visitors were F. A. Coffman, Washington D. C., Dr. K. S. Quisenberry, Lincoln, Nebr., J. C. Brinsmade, Jr., Mandan, N. Dak., H. H. Flor, Fargo, N. Dak., Dr. and Mrs. G. K. Meister, of the Saratov Experiment Station, U. S. S. R., and A. S. Essipov, Chief of the State Plant Breeding Fund of the Soviet Peoples Commissariat of Agriculture, Moscow.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Aug. 8)

Weather conditions in July were about seasonal. The precipitation amounted to 1.60 inches for the month; following the rain of 1.04 inches on July 20, plowing of grain and other land was possible. Temperatures were about normal except for the period of July 13 to 21, when the maximum temperatures ranged from 99° to 107°. Hot winds accompanied these high temperatures and injured growing crops.

The writer visited the cooperative wheat varietal tests in west Texas during the week of July 13. Two cooperative varietal tests and a portion of the Amarillo varietal test were harvested. Only a very small portion of the Amarillo nursery was harvested. Yields in all instances were low. There is practically no wheat of commercial value on the Plains, although a considerable area will be harvested for seed.

All nursery threshing at the Substation has been completed. Yields of all grains were good and some very promising new strains of oats and barley appeared in the replicated nursery experiments this year. A number of these will be increased next year for seeding in drill plots the following year.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Cereal Breeding, H. H. Laude) [Aug. 6]

Average yield of winter-wheat varieties grown in triplicated 1/40th-acre plots at the Agronomy Farm, Manhattan, Kans., 1936

Variety	C. I. no.	Kans. no.	Yield (Bu. per acre)
Turkey selection	10094	2719	40.9
Tenmarq	6936	514	39.0
Cheyenne	8885	2667	37.2
Oro	8220	495	36.1
Kharkof	1442	2591	35.9
Kanred x Marquis	11589	2690	35.4
Kanred	5146	2401	34.5
Kawvale	8180	2593	33.3
Turkey	1558	570	33.2
Quivira	8886	2628	32.8
Turkey selection	10016	2720	31.9
Kanred x Hard Federation	10091	2672	31.2
Prelude x Kanred	11591	2689	31.2
Blackhull	6251	343	30.8
Clarkan	8858	505	30.6
P1066-1 x Prelude	11590	2695	30.3
Nebraska No. 60	6250	322	30.2
Fulcaster	6471	317	28.8
Early Blackhull	8856	483	28.7
Kanred x Genesee Giant	--	--	28.2
Kanred x Hard Federation	10092	2673	26.9
Harvest Queen	6199	19	26.6

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Aug. 1)

This territory, in common with a large region in the Middle West, has gone through a long period of drought. The day temperatures fell below 100° only eight times during July and reached maximums of 113° and 114° on the 17th and 18th, respectively. The rainfall for the month was 0.74 inch, while that for June was 0.73 inch. During the last few days the heat wave has been broken by cooler weather and light rainfall in the Hays region. In some areas there has been effective rainfall, but general precipitation of from two to three inches will be required to bring up the soil moisture for immediate needs.

All sorghums have withstood the drought remarkably well. Corn has shown greater drought resistance than usual. All row crops have been subjected to high temperatures or drought almost from the time of emergence. Corn has been injured greatly by grasshoppers. Poisoned bran has been applied freely over all experimental plots and control has been quite effective, except for corn.

The following table gives the average yields of wheat from four replicated plots on the Cereal Project in 1936.

Variety	C.I. No.	Yield (Bu. per acre)	Test wt. per bu. (Lbs.)
Chiefkan	----	38.8	63
Quivira	8886	31.7	64
Kanred x Hard Federation	10091	31.7	64
Do.	10092	31.6	63
Kanred x Marquis (Kans.2690)	11589	30.6	63
Tenmarq	6936	29.8	61
Blackhull	6251	29.2	63
Turkey selection	10094	28.6	62
Kanred	5146	27.7	60
Cheyenne	8885	27.0	61
Early Blackhull	8856	26.9	65
Oro	8220	26.9	60
Turkey selection	10016	26.5	63
Turkey	1558	25.1	60
Rupp	----	25.1	62
Norton Turkey	----	25.0	59
Nebraska No. 60	6250	24.5	58
Kanhull	----	24.2	63
Kharkof	1442	23.8	59

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) [Aug. 3]

The weather in July was unusually hot and dry. There was almost no precipitation and an all time high temperature of 115° was recorded.

Average yield of winter-wheat varieties grown in [illegible] 1/40th-acre plots Lincoln, Nebr., 1936

Variety	C. I. no.	Nebraska no.	Yield (Bu. per acre)
Turkey selection	10094	1063	34.2
Kanred	5146	1003	33.0
Crimean Turkey	1435	1002	33.0
Kawvale x Tenmarq	11669	1086	32.7
Turkey	----	1011	32.2
Cheyenne	8885	1050	31.9
Oro x Fulhard	11579	1083	31.5
Turkey	----	1	31.4
Nebraska No. 6	6249	6	31.3
Cheyenne selection	11666	1087	31.2
Turkey (Seward Co.)	----	1005	31.0
Turkey selection	----	312	30.9
Do.	10015	1062	30.8
Oro	8220	1032	30.6
Kharkof	1442	1010	30.3
Turkey selection	11576	1082	30.1
Do.	11577	1081	29.7
Schluckebier Turkey	----	10090	29.5
Nebraska No. 60	6250	60	29.4
Iowin	10017	1059	29.1
Tenmarq	6936	1030	29.1
Turkey selection	11667	1088	29.1
Blackhull	6251	1004	29.0
Turkey selection	10016	1069	28.8
Clarkan	8858	1084	28.5
Kawvale	8180	1052	27.8
Minturki	6155	1012	27.7
C.I. 8034 x Tenmarq	11668	1085	27.1
Quivira	8886	1053	26.3
Early Blackhull	8856	1057	24.2
	Single Plots		
Minturki x Blackhull	11671	1089	28.2
Blackhull selection	11737	1093	26.2
Tenmarq x Minturki	11580	1094	25.1
Turkey selection	11734	1095	24.0
Akron No. 7	11660	-----	24.0
Blackhull selection	----	1092	23.5
Turkey selection	11735	1096	23.1
Ridit x Nebraska No. 6	11670	1097	18.3

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN
(Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Aug. 1)

The drought continues unabated. No precipitation was recorded at Mandan in July, although some was recorded in other localities in the State. The total precipitation for the growing season to date from April 1 to July 31 was only 0.95 inch, which is only about 10 percent of the average precipitation for these four months for the past 22 years. The average daily mean temperature for July was 83°, which is 12° higher than the 22-year average. The maximum temperature in the last half of July was 111° on the 16th and the minimum 55° on the 27th.

The wheat in increase plots, which was too short to harvest with the binder, was mowed with a buncher attachment resting on a sheet metal apron behind the sickle bar to prevent the heads on short stems from slipping out underneath and being lost. Threshing of the wheat nursery and increase plots was completed July 29. More seed than was sown was recovered of each variety except in a few instances, and in some cases more than three times the seed sown was recovered. The yield and quality of grain were better than expected considering the extreme drought, heat, and insect injury. Test weights ranged from 45 to 53 pounds per bushel. Wheat, oats, barley, and flax in the varietal plots, which were much shorter and poorer than the wheat in increase plots on land fallowed for two years, were discarded without harvesting except for two wheat varieties grown in plots for the first time, of which the plants were harvested by hand to recover all seed possible. The seed recovered amounted to only about half that sown. The best of the wheat varieties not harvested probably would have yielded little more seed and most of them would have yielded much less.

Early varieties of flax in nursery rows are almost ready to harvest. Some late varieties that escaped severe heat injury are still in bloom and may be expected to set a fair crop of bolls.

On a trip with Dr. H. H. Flor during the week of July 20 from Fargo, N. Dak., south through Breckenridge and Ortonville, Minn., to Brookings, S. Dak., and east through Worthington, Jackson, Mankato, Redwing, and St. Paul, and back to Fargo crops in general appeared much better than at Mandan. Stands of cereal grains and flax sown early were generally in good condition, but stands of late-sown flax were generally poor. On the way from Fargo to Brookings all crops, especially flax, showed severe drought and heat injury, although the severity of the injury gradually diminished as we drove south. Much of the flax would not be worth harvesting, and the seed in the best fields was badly shriveled. In southern Minnesota, in the region around Worthington and Jackson, many fields of Bison flax, ready to harvest or already harvested, appeared excellent and might be expected to yield between 10 and 15 bushels per acre of good, plump seed. As we progressed northeast to St. Paul and back to Fargo the drought and heat injury became increasingly evident. Between St. Paul and Fargo crops in general appeared poorer than on the trip south from Fargo along the western border of Minnesota.

A meeting of the scientific staff for the northern group of Dry Land Agriculture stations was held at Mandan July 24 and 25. Those in attendance included Dr. C. E. Leighty and Mr. O. R. Mathews from Washington, D. C.; Messrs. H. L. Walster, T. E. Stoa, and E. H. Tyner from the North Dakota Experiment Station; Superintendents of stations in North Dakota, South Dakota, Nebraska, Wyoming, Montana, and Oregon; and county agents of Morton and Burleigh counties in North Dakota. Mr. F. A. Coffman of Washington, D. C., also visited the station on July 24.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 1)

The month of July was uniformly hot and dry with a new high record for heat. The mean maximum temperature was 99° and the mean for the month was 81°. This is in sharp contrast with the mean for February which was 12.2° below zero. The maximum for July was 114° on the 6th and the minimum 49° on the 1st. The maximum was 100° or more on 16 different days. The precipitation was 0.29 inch, making a total of 3.59 inches since the beginning of 1936.

Threshing at the Substation is completed except for a few plant rows and the experiment with light weight seed.

Yields of field plots were in fractions of a bushel per acre. Yields of spring wheat in nursery rows varied from one to six bushels per acre, while those of oats and barley were only slightly better.

Field plots of flax, proso, corn, winter wheat, rye, and safflower were a complete failure, as were midseason and late varieties of oats and barley.

Official visitors at the Substation in the latter half of July were Mr. J. A. Clark and Mr. F. A. Coffman.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, E. C. Coby) [Aug. 7]

The weather in July was very hot and dry, breaking all previous high mean temperatures by 5.6°. The minimum temperature was 47°, the maximum 102°, and the mean 75.6°. The 27-year mean temperature for July at this Station is 65.3°. The precipitation for the month was 0.35 inch, recorded on six different dates.

These weather conditions dried up the crops instead of ripening them. Neighboring farmers have harvested from 1.5 to 5 bushels per acre of spring wheat on summer fallow.

All the cereal plots were tall enough to bind, but the grain is very light. Test weights are running from 53 to 58 pounds.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Aug. 1)

July has been characterized by cloudy weather accompanied by high humidity. Many local showers have fallen, but only 0.65 inch resulted. In other sections of Utah storms have reached flood proportions, causing considerable damage. Highways at the present time are covered with several feet of mud and rocks at points in Boxelder County.

As a result of a new set of conditions cereal crops have been slow in ripening, yet the mean temperature for the month is one of the highest on record. Winter wheat is generally poor while the irrigated cereals are satisfactory. Light infections of stem rust have been observed in the small grains as well as in some commercial fields. Smut in winter wheat was not so serious as in 1935 yet fields averaging 50 percent have been found. Only a little of the short smut (Tilletia tritici) appears this season.

Corn and grain sorghum varieties have grown exceptionally well so far. All corn varieties have reached the silking stage, while the sorghum varieties are mostly headed. Flax also promises good yields.

Uniform county nurseries showed vigorous growth but have lodged badly owing to storms. Some tests have been abandoned, as early lodging, rust, etc. have caused undue shrinking.

Messrs. B. B. Bayles, H. A. Rodenhiser, C. S. Holton, and Wayne M. Bever were Station visitors during the period from July 16 to 21. Notes were taken on smut nurseries and surveys were made of the smut conditions in northern Utah. Dr. H. V. Harlan , Mr. W. J. Sando, and Miss Martini visited the Station on July 20. T. R. Stanton arrived on July 24 and spent 4 days assisting in making studies of oat varieties and strains. Some of the better selections were observed in Salt Lake and Utah counties. The three most outstanding in yield, color, straw strength, and smut resistance were C. I. 2606 (Markton x Victory), C.I. 3129, and C. I. 3141 (Markton x Swedish Select). One of these strains may be multiplied to replace Markton and Swedish Select.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson)
(July 31)

The maximum temperature so far this summer was 109° and the high minimum 70°. The precipitation in July was divided between two showers and totaled only 0.3 inch, but this was 0.2 inch above the 64-year average. Such a climate is ideal for threshing -- our major activity during the month of July.

Stem rust has damaged late wheats considerably. Barley and oat yield nurseries were lost for the second consecutive year owing to very severe lodging. Our rotation scheme featuring alfalfa and beans (row crop) for control of wild morning glory probably needs revision to reduce the lodging hazard in cereals.

Yields of some of the more widely known California cereal varieties are shown in the following table.

Variety	C.I. no.	Acre yield in Bu. (Av. of 5 replications) Field plots	Nursery
Barley:			
Atlas	4118	92.9	34.0
Coast	6115	81.1	38.4
Vaughn	1367	101.5	47.8
Hero	4602	83.6	27.8
Club Mariout	261	82.6	11.5
Wheat:			
Ramona	8241-1	29.5	34.6
Pusa No. 4	8899	49.5	36.8
Poso	8891	50.0	39.5
Federation	4734	32.7	24.7
White Federation	4981	46.6	32.8
Escondido	8240	52.5	43.7
Baart	1697	35.8	25.6
Big Club	11793	22.0	15.0

The poor correlation between plot and nursery yields of barley probably reflects the effects of and errors incident to severe lodging. The high yield of Pusa No. 4 wheat is of special interest, as 40 percent of its florets were rendered sterile by the early April frosts.

We have a total of 650 sacks of "Foundation Seed", including 12 varieties of wheat, barley, and oats, for distribution this fall.

Dr. F. N. Briggs' Martin x Big Club 7, a Big Club with the Martin factor for bunt resistance added by the backcross method, is the only "new variety" listed.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 . August 25, 1936 No. 13

Personnel (Aug. 11 - 25) and Field Station (Aug. 1 - 15)

PERSONNEL ITEMS

The degree of Ph. D. was granted to Burton B. Bayles in June 1936 by the University of Wisconsin.

Dr. Charlotte Elliott left Washington on August 12 to inspect corn in cooperative plots on Long Island and Geneva, N. Y. She returned on Aug. 15.

Dr. M. T. Jenkins left Washington on August 25 for a month's trip in Tennessee, Louisiana, Texas, Arizona, California, Oregon, Washington, Utah, Colorado, Iowa, Illinois, Wisconsin, Indiana, and Ohio to inspect cooperative corn breeding experiments and confer with Division personnel and officials of State agricultural experiment stations on cooperative corn improvement research.

Mr. L. W. Kephart returned Thursday from a visit to the original infestation of Austrian field cress (Roripa austriaca) in northern New Jersey. Since the appearance of the plant in New Jersey 20 years ago it has appeared in Wisconsin, Minnesota, and California. The weed has spreading roots, similar to those of whitetop, and except for the fact that it does not produce seeds abundantly would be a very threatening species. No chemical or cultural treatment has been found that prevents it from spreading vegetatively.

Dr. J. H. Martin is on an official trip in the interests of sorghum investigations. His itinerary will include stops in Oregon, Utah, Colorado, Nebraska, Kansas, Texas, Oklahoma, Arkansas, Iowa, Illinois, Missouri, and Tennessee. He will conduct experiments in sorghum breeding and inspect cooperative experiments on Federal and State experiment stations. Dr. Martin will return to Washington about the middle of October.

Dr. N. E. Stevens is making a survey of bacterial wilt of corn in Indiana, Ohio, Pennsylvania, Maryland, Virginia, New York, Massachusetts, New Hampshire, and Maine.

RECENT PUBLICATIONS

Improvement in Wheat. J. Allen Clark. Yearbook of Agriculture 1936: 207-302, figs. 1-34, incl. ports. 1936.

Improvement in Flax. A. C. Dillman. Yearbook of Agriculture 1936: 745-784, figs. 1-10, incl. ports. 1936.

Problems and Results in Barley Breeding. H. V. Harlan and M. L. Martini. Yearbook of Agriculture 1936: 303-346, figs. 1-6, incl. ports. 1936.

Corn Improvement. Merle T. Jenkins. Yearbook of Agriculture 1936: 455-522, figs. 1-22, incl. ports. 1936.

Improvement in Rice. Jenkin W. Jones. Yearbook of Agriculture 1936: 415-454, figs. 1-14, incl. ports. 1936.

Heredity under the Microscope. J. H. Kempton. Yearbook of Agriculture 1936: 165-182, figs. 1-18. 1936.

Sorghum Improvement. J. H. Martin. Yearbook of Agriculture 1936: 523-560, figs. 1-10. 1936.

Superior Germ Plasm in Oats. T. R. Stanton. Yearbook of Agriculture 1936: 347-414, figs. 1-10, incl. ports. 1936.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
WASHINGTON

Office of Chief of Bureau
B. P. I. Memo. 902

August 13, 1936.

MEMORANDUM TO HEADS OF DIVISIONS

Gentlemen:

Under the terms of the permanent regulations covering sick and annual leave, all employees appointed on a "W. A. E." basis and employees hired under letter of authorization receive neither sick nor annual leave.

A number of questions have been received from the field as to whether "W. A. E." employees are entitled to Saturday half holiday with pay. This matter was referred to the Solicitor of the Department for an opinion. He advises that the various opinions of the Comptroller General hold in effect that employees appointed on a "W. A. E." basis and who work intermittently in the early spring and late fall, but who at other seasons of the year may work continuously or not at all, are not entitled to the benefits of the Saturday half holiday law.

The use of "W. A. E." appointments should be restricted to bona fide intermittent employment. Seasonal employees whose services may be desired for the season only, but continuously, should be appointed by the month and limited to a definite termination date. Where the employment will in all probability be intermittent in large part, even though continuous for one, two, or even three months, depending upon weather and other conditions, the appointment should be on a "W. A. E." basis.

In view of the foregoing, all employees appointed on a "W. A. E." basis, and all employees under letter of authorization, are entitled neither to sick nor annual leave nor to the benefits of the Saturday half holiday law.

Sincerely yours,

F. D. RICHEY
Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY

Property Room

August 24, 1936.

MEMORANDUM FOR HEADS OF DIVISIONS

The Comptroller General has ruled that all Government bills of lading and certificates in lieu of lost bills of lading must be provided with a statement to be signed by the consignor as to whether pick-up service at point of origin was or was not performed by the Government; also a similar statement to be signed by the consignee as to whether delivery service at destination was or was not by the Government.

The new supply of bills of lading now on hand in the Property Room, some of which have already been furnished the Divisions of the Bureau upon request, contain the two statements required. However, there are now in the possession of some of the Divisions of the Bureau, unused bills of lading, which were issued some time ago, and which do not contain the two statements referred to. In using these latter bills of lading and certificates the Comptroller states that they must have the two statements referred to stamped or typed in convenient places on the faces thereof. In view of this, it is requested that all unused bills of lading and certificates in lieu of lost bills of lading now in the possession of your Division be provided with the two statements referred to. It is especially requested that this information be transmitted immediately to any of your field employees who now have unused bills of lading and certificates in their possession.

In connection with the above I wish to state that it has frequently been noted in examining freight transportation vouchers, supported by bills of lading containing the two statements referred to, that there is no indication in such statements as to whether the pick-up or delivery service was or was not performed by the Government. In view of this it is requested that all employees of your Division handling bills of lading and certificates in lieu of same be instructed to see that the information called for is furnished in each instance.

Very truly yours,

GEO. B. HOLMES,
Jr. Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment Stations or other agencies)

VIRGINIA

ARLINGTON EXPERIMENT FARM, ROSSLYN (Small Grain Agronomy, J. W. Taylor) (Aug. 7)

Threshing of all small grains has been completed. Despite a severe winter yields in general were above average. The rainfall in April and June was low but fall-sown grains did not suffer. The lowest temperatures of the winter occurred in February, when -5° and -6° F. were recorded. The more tender winter oat and barley strains were severely winter-killed. Custis, Lee, and Randolph, related varieties, outyielded the Turf types despite greater winter injury.

Winter barley yields were decidedly above average. Many of the best yielders the past year are recent selections carrying resistance to covered smut and mildew. Nakano Wase 68 is one of the better awnless selections but has not sufficient height or winter-hardiness for parts of Virginia. However, at the nursery test at Staunton, Va., the past year, when the winter oat varieties were completely winter-killed, it also led the 38 varieties or selections grown.

Growing conditions for summer crops have been in the main satisfactory. With the exception of one dry spell in July corn has not suffered for want of moisture. However, parts of Virginia, Maryland, and West Virginia have very poor corn and hay, as the rainfall in July was mostly local showers.

Yield of fall-sown oats grown in duplicate 1/40th-acre plots at the Arlington Experiment Farm, 1936.

Variety	C. I. no.	Yield (Bu. per acre)	Percentage of check 1/
Custis	2041	60.8	97
Lee	2042	58.8 2/	--
Randolph	2275	55.2	94
Fulghum selection	2499	54.6	94
Do.	2498	53.9	86
Sporen	2506	51.6	88
Winter Turf	431	50.5	81
Culberson	273	50.0	80
Winter Turf 541-4	----	49.2	84
Coker 32-1	3026	41.2	70
Coker 33-19 3/	----	21.3	40
Coker 33-27 3/	3176	16.6	32
Fulghum	708	12.7	20
Coker 33-50 3/ 4/			

1/ Calculated from four check plots on both sides of variety.
2/ Average of six check plots.
3/ Single plots.
4/ Completely winter-killed.

Yield of fall-sown barley grown in duplicate 1/80th-acre plots at the Arlington Experiment Farm, 1936.

Variety	C. I. no.	Yield (Bu. per acre)	Percentage of check 1/
Nakano Wase 68	----	53.4	96
Esaw	4869	52.8	119
Smooth Awn 86	----	47.5	103
Wisconsin Winter	2159	46.8 2/	---
Smooth Awn 1	----	45.4	82
Composite Cross	4116	45.3	107
Nakano Wase selection B	----	44.7	80
Smooth Awn 203	----	44.3	96
Composite Cross	5530	43.8	103
Mechanical Mixture	4115	43.5	105
Tennessee Winter	3546	43.3	98
Wood's Hooded	----	43.2	86
Tennessee Winter	257	42.8	103
Gaddis	----	42.8	86
Hooded 6	----	42.1	84
Han River	2163	41.6	98
Beardless 6	2746	41.3	93
Orel	351	41.1	99
Smooth Awn 205	----	40.7	88
Tennessee Winter	3534	40.4	95
Nakano Wase 33	----	39.3	79
Kentucky Smooth 11	----	38.5	84
Alaska	4106	38.3	93
Tennessee Winter (Johnson)	----	36.4	82

1/ Calculated from check yields on both sides of variety.
2/ Average of 14 check plots.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Aug. 17)

Sorghums and broomcorn in the project are holding on and it is a matter of surprise that all are not dried up by now. Some of the earlier plantings are heading but little can be expected from them as they are developing under such dry, hot conditions. Should rains occur the later plantings will have a chance to develop grain.

So far as summer crops are concerned 1936 has been worse than 1934 and any results will depend on the next two weeks.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Aug. 17)

Cleaning of grain, threshing plant and head selections, and tabulating of data are in progress at present.

Hot, dry weather continues. Temperatures of 100° or over have been recorded on 41 days so far in 1936. Maximum temperatures for the past 8 days have been 108° or over and on 2 days the temperature was 113°. The maximum temperature for the first half of August was 113.5° on the 13th. (Few would call that lucky.) The minimum was 62° on August 1 and the mean was 90°.

The total rainfall for the first half of August was 0.37 inch on the 4th, the first of any consequence since June 3.

Pastures are very short and brown in this area. Sorghum and cotton fields are holding on surprisingly well. The leaves of the former are curling in a majority of the farm fields and rain must fall soon if a crop is to be made. Grasshoppers are causing damage to cotton, alfalfa, and pastures but so far have done little damage to the sorghums. Grasshopper poison is being distributed to farmers of Woodward County. Several cases of poisoning from second cuttings of Johnson grass hay have been reported. The U. S. Dairy Station at Woodward lost 11 head of cattle from such poisoning. Most all trees and shrubbery on the station and in town are suffering from the dry weather where they have not been heavily watered.

FORT HAYS BRANCH STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Aug. 17)

Approximately 1 inch of rainfall was recorded the first week of August, which together with cool and pleasant weather revived the row crops. Since August 9 high temperatures and low rainfall have prevailed. Heading of the early sorghums on the Cereal Project has been fairly satisfactory and there is some prospect of grain yields. The late maturing sorghums are at a standstill.

In the August 10 issue of the Cereal Courier the yield for Chiefkan wheat was sent in as 38.8 bushels. This yield should have been reported as 31.8 bushels.

Mr. A. S. Essipov, of Moscow, Russia, and his interpreter, Mr. J. W. Pincus, were Station visitors on August 13. Director L. E. Call, of the Kansas Experiment Station, accompanied by agricultural representatives of the Union Pacific Railroad, also were recent visitors.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Aug. 17)

No significant change has occurred in the drought situation in this locality. Cloudy weather has occurred frequently but there was no effective precipitation during the first half of August. The total rainfall recorded was 0.04 inch.

The flax in nursery rows still survives and continues to bloom although now almost through blooming. Many bolls blighted without setting bolls, but the plants have set a surprising number of bolls considering that there has been no effective precipitation during the past 8 weeks and the total precipitation recorded since March 24 amounted to only 1 inch. The maximum temperature was 100° on the 1st, 8th, 10th, and 14th; the minimum was 54° on the 5th.

Mr. J. Allen Clark made a brief visit to the Station on August 10.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 17)

All threshing at the Substation has been completed and the yields approach zero more closely than in any previous year. No threshing has been done on farms in the vicinity of the Substation but a few fields in the county have been considered good enough to thresh. Most grain fields have been pastured and a few of the best cut for hay.

Mr. J. Allen Clark visited the Substation on August 10.

The precipitation so far in August has been 0.21 inch and that for 1936 3.80 inches. The temperature has been above 100° a few times this month and the maximum was 104°.

The yields obtained from the uniform regional nursery of spring wheat are given in the table.

Yields of spring-wheat varieties in the uniform regional nursery at the Dickinson Substation, 1936.

Variety	C. I. no.	Nursery no.	Yield (Bu. per acre)
Reliance x Hope	11788	1249	3.4
Komar x Hussar	11715	1305	2.9
Comet	11465	649	2.9
Hope x Ceres	11786	1250	2.8
Ceres x Hope-Florence	11712	2592	2.7
Hope x Ceres	11787	1249	2.5
Ceres x Hope	11716	1289	2.3
Hard Federation x Hussar	11792	1018-P	2.4 1/
Hope x 1656.48	11641	2554	2.3
Hope x Ceres	11428	1098-B	2.2
H-44 x Ceres	11781	1517	2.2
Ceres	6900	1658	2.1
Marquis	3641	--	2.1
H-44 x Marquis	11782	1552-4	2.0
Pentad x Marquis	11721	1114	2.0
Ceres x Hope-Florence	11640	2553	2.0
H-44 x Marquis	11720	975	1.9
H-44 x D. C.	11789	II-28-16	1.9
H-44 x Marquis	11644	II-26-9	1.8
H-44 x Thatcher	11791	II-28-61	1.8
Ceres x Hope-Florence	11779	2687	1.8
H-44 x Marquis	11643	II-26-6	1.7
H-44	8177	--	1.7
Apex	11636	304	1.7
Ceres x Hope-Florence	11708	2634	1.6
Hope-Reliance x Prelude	11784	--	1.6
Renown selection	11709	716-A	1.7
H-44 x D. C.	11790	II-28-68	1.2

1/ Average of 2 plots; third plot destroyed by gophers.

OREGON

AGRICULTURAL EXPERIMENT STATION, CORVALLIS (Foot Rots of Wheat) Roderick Sprague) (Aug. 10)

Readings and tabulations on the seed treatment work for control of bunt in winter wheat in Washington and Oregon have been completed. Plots were maintained at Pullman and High Prairie, Wash., and at Pendleton, Moro, and Monroe, Oreg. In most of the series the wheat was treated with ground smut at the rate of 1 to 200 by weight. This resulted in heavy infection averaging close to 80 percent in all the plots except High Prairie where infection was about 60 percent in the checks. None of the dust treatments, except ethyl mercury phosphate (New Improved Ceresan) at 1 oz. per bushel, proved entirely effective under these severe conditions. However, the results were sufficiently comparable and consistent to give strong indications of the relative efficacy of the various treatments. A summary of a few of the more common treatments as tested in the several experiments is as follows:

Treatment	Rate	Smutted heads
		Percent
New Improved Ceresan	1/2 oz.	10.3
Do.	1 oz.	.95
Basic copper sulphate	2 oz.	4.7
Formaldehyde	1-320	.8
Copper sulphate + lime bath	-----	1.2
18 percent copper carbonate	2 oz.	21.2
52 percent copper carbonate	2 oz.	10.4
Untreated check	-----	72.6
Copper hydroxide	2 oz.	16.0 1/

1/ 2 experiments only.

Throughout the various experiments and plots basic copper sulphate was considerably more effective than any of the copper carbonates. The latter materials varied considerably in their relative effectiveness but those with 52 percent copper were far more effective than those with 18 percent. There are indications that copper hydroxide is more effective than the low grade carbonates and at present it is cheaper.

New Improved Ceresan was not effective in controlling smut caused by unbroken smut balls on the seed nor does the 1/2 oz. per bushel rate give very good control when the grain is heavily smutted and seeded late, as these trials were for the most part. New Improved Ceresan did not reduce the stand, however, even at the 1 oz. rates and in most cases the rows grown from seed treated with New Improved Ceresan had the thickest stands. The rows grown from seed treated with basic copper sulphate had stands almost equal to these.

Certain of the arsenicals, particularly one brand of Paris green, were very effective but their poisonous properties discourage their use.

The copper carbonates that give fair control in seedings made early in the fall seem to lose much of their effectiveness when the grain is seeded later in wet, cold soils. Basic copper sulphate, on the other hand, holds up better under these conditions. Tests made with the latter from various sources again indicate that the bulk material sold for fruit spray is virtually as effective as the more expensive product sold to the wheat grower. In addition, confusion with dry copper Bordeaux and with copper hydroxide is occurring even among county agents. These products differ as follows:

Name	Color	Copper content (Percent)	Effectiveness (2 oz. rate)
Basic copper sulphate	Bright blue green	52	Superior
Copper Bordeaux dust	Dull light blue	22	Mediocre to poor
Copper hydroxide	Pale blue	26	Fair

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 14

September 10, 1936

Personnel (Aug. 26 - Sept. 10) and Field Station (Aug. 16 -31)

PERSONNEL ITEMS

Mr. A. C. Dillman left Washington on Sept. 2 for Minneapolis, Minn. where he will assist in the emergency seed purchase program.

Dr. E. R. Ausemus will also assist with the emergency seed purchase program at Minneapolis.

Dr. L. J. Stadler left Columbia, Mo. on Sept. 1 to attend meetings of the Genetics Society at Woods Hole, Mass., Sept. 4-5, and of the Harvard Tercenternary at Cambridge Sept. 7-9, and to confer with personnel of the Dept. at Washington, D. C. regarding corn research.

RECENT PUBLICATIONS

Bureaucracy As a Way of Life. Neil E. Stevens. Science 83 (2160):497-499. May 22, 1936.

Leaf Number of Sorghum Stalks. J. B. Sieglinger. Jour. Amer. Soc. Agron. 28(8): 636-642. August 1936.

Reaction of Wheat Varieties to Composites of Races of Bunt Occurring in the Pacific Northwest. J. Foster Martin. Jour. Amer. Soc. Agron. 28(8): 672-682. August 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Oregon Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

NEW YORK

CORNELL UNIVERSITY AGRICULTURAL EXPERIMENT STATION, ITHACA
(Cereal Breeding, H. H. Love) (Sept. 1)

In common with other parts of the country, New York has suffered from drought. The result has been that at Ithaca and in certain other parts of the State conditions for oats and barley have been very unfavorable. In certain sections there has been sufficient rainfall to produce rather satisfactory crops of oats. On the other hand, wheat was very satisfactory at Ithaca and in a number of other parts of the State. The yields from our experiments are very good, as will be observed from the results given below:

Wheat Test 1935-36

Varieties in advanced test	Yield (Bu. per acre)
Forward	39.0
Honor	37.5
New Junior No. 6	41.1
Yorkwin (254a1-101-19 Dietz 105-5 x Gold Coin 129-65)	41.2
251a1-28-2 (Forward x Gold Coin 129-65)	38.7
369a2-2-44 (Honor x Rosen Rye) x Honor)	38.8
Junior No. 6-9 (White chaff strain)	41.8
501ar1-11 (Honor x Forward)	40.1
501cr1-39*	38.6
501cr1-41	39.5
501cr1-46	40.0
501e1-28*	37.9
Valprize	37.1

* These are highly resistant to loose smut.

It will be observed that Hybrid 254a1-101-19 has given a very good yield. It has been given the name "Yorkwin" and is being distributed to growers this year. This variety has been the best yielding white wheat we have had during the last few years and, according to the report from one of the milling companies, the flour seems very satisfactory, as indicated from the following quotation: "Enclosed also you will find an analysis of this flour made on October 23rd, also for comparative purposes copy of analysis made on our White Frost Pastry Flour on September 23rd. White Frost is our general run of New York State Pastry Flour. We must say that we are quite enthusiastic over this new wheat. The flour is exceptionally good and only very slightly stronger than our regular Winter Straight." The flour was also used in some baking tests conducted by the Department of Home Economics here at Cornell and they report very satisfactory results. Professor Pfund states: "We liked the quality of gluten in your flour very much indeed. It is very tender and showed a good power of expansion. In all cases listed above it yielded products which were more tender than the flour with which we were comparing it." There will be about 2,000 bushels of good seed of this variety put out this year.

The barley experiments conducted here at Ithaca have given very poor yields. The oats were somewhat better and while the yields will not be high, the comparisons will be rather satisfactory. Since at present we are giving considerable attention to the breeding of smut resistant varieties of oats, we were able to make some very excellent comparisons this year because smut developed very well on the susceptible varieties. Many of the new hybrids made between our high yielding strains and a smut resistant parent showed no smut.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (Sept. 1)

The highest temperature recorded this summer was 106° F. on August 10. All time heat records have been broken this summer in many places in Arkansas. The drought still continues. There have been only two light showers since July 3. The total precipitation for August was 0.28 inch. The drought is not so serious here as it is in the northwestern part of the State. The soybean and late corn crops will do fairly well if it rains soon. The dry, hot weather has necessitated almost continuous pumping into the rice fields but very little rice has been lost because of a shortage of water.

The harvest of early varieties of rice on commercial fields will be in full swing within the next week. Several early fields have been harvested and one small field has already been threshed. Blue Rose, the leading late variety, is starting to head at this time on many commercial fields.

All of the early and midseason varieties of rice on Station plots are headed. Harvest will start in about two weeks. Early seedings of the Blue Rose variety are also starting to head. The varieties in field plots appear to be a little better than average this year. However, rice in nursery rows, generally speaking, is rather poor.

The Second Annual 4-H Club Visiting Days were held at this Station August 24 and 25. The Tenth Annual Field Day will be held September 3rd.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Sept. 1)

The drought which has prevailed throughout the summer months still continues. Rainfall during the month of August totaled 0.12 inch, the second lowest on record. Mean temperature for the month was 87.4 ° and 3.5 ° above normal. All time high records of maximum temperature were broken on August 10 and 11 when 113° F. was recorded on two consecutive days. The previous high was 108° F. in 1913.

The drought and hot winds have seriously damaged feed crops in this area. From one of the most promising crops in many years, cotton was reduced during the month to below average yields and inferior quality. Cotton picking is general due to the premature opening of bolls caused by the drought. Early sorghum crops produced a fair crop but late planted crops have made little or no growth.

Preparation of land for fall planted small grains has been materially hampered by the dry weather. Threshing of small grains was completed early in the month. Shattering tests and strength of straw studies are being conducted on F_3 material. Three varieties of wheat introduced from Argentina and grown at Denton this past season were found to be free from both stem and leaf rust while adjoining varieties were heavily infected. These are Fronteira F.P.I. 106503, Frondoso F.P.I. 106504, and Supreza F.P.I. 106565.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Sept. 1)

August with its high temperature, low humidity, and no effective rain was most disastrous to row crops. In most plots and fields burning and drying is becoming general. The late plantings are again showing best but have little chance to produce much seed or forage. Broomcorn is damaged worse than grain or forage sorghums. It would be interesting to note which crops could partly recover should conditions improve.

The maximum temperature for the last half of August was 107° on the 25th; the minimum for the same period was 54° on the 30th. The precipitation was 0.17 inch on the 28th making a total for August of 0.54 inch. On 23 days in August the maximum temperature was 100° or higher.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Aug. 3)

Winter wheat yields in 1936 were not high owing to dry weather, although the grain was of good quality and the test weights averaged close to 60 pounds per bushel.

The following yields were obtained from varieties grown in four 1/47th-acre plots.

Variety	C.I.no.	Yield (Bu. per acre)
Kharkof	1442	22.5
Nebraska no. 60	6250	21.1
Local Turkey (Woodward no. 1008)--		20.2
Sibley no. 62	11523	20.1
Tenmarq	6936	20.0
Kanred	5146	19.9
Turkey sel.(Goodwell no. 102) --		19.1
Kanred x Marquis	10090	19.0
Cheyenne	8885	18.3
Oro	8220	18.2
Blackhull	6251	18.0
Sibley no. 81	10084	17.6
Quivira	8886	16.2
Kanred x Hard Federation	10092	16.0
Fulcaster	6471	15.7
Denton	8265	15.1
Kawvale	8180	13.6
Turkey sel.	10016	13.4
Kanred x Hard Federation	10091	12.4
Early Blackhull	8856	12.0

The 15 highest yielding varieties in the uniform yield nursery grown in 4 triple rod row plots were as follows:

Variety	C.I.no.	State no.	Yield (Bu. per acre)
Turkey sel.	11576	Nebr.sel.31D650	24.1
Oro x Fulhard	11579	Nebr.sel. 23767	23.6
Turkey sel.	10083	Okla. no. 1	22.9
Beloglina x Hussar	11513	North Platte no.126	22.9
Turkey sel.	10094	Nebr.no. 1063	22.9
Kanred x Kanred-Marquis	11592	Kansas sel. 303942	22.7
Turkey sel.	11375	Colorado no. 351	22.6
Kharkof	1442		22.6
Kawvale x Tenmarq	11669	Nebr.sel.23860	22.5
Fulhard	8257		22.2
Minturki x Blackhull	11671	Nebr.sel.31A874	22.0
Turkey sel.	11577	Nebr.sel.31D101	21.8
Cheyenne sel.	11666	Nebr.sel.32U886	21.8
Akron Mutant no. 7	11660	----	21.8
Blackhull	6251	----	21.8

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Corn Breeding, A. M. Brunson) (Sept. 1)

Extreme heat continued unabated through August. A new high record for the 78-year weather observations at Manhattan was established August 13, with a maximum of 116°, a minimum of 88°, and a mean temperature of 102°. Today is the 54th day this summer with an official maximum of 100° or over. The rainfall in August totaled 2.19 inches on 5 days but scarcely moistened the parched ground enough to plow for wheat.

Corn is practically a total failure over most of the State except for occasional small fields in creek bottoms that will produce some grain. Early varieties of sorghum have headed and will produce seed, but almost none of the later grain or forage sorghums has headed yet, which means that seed cannot mature before frost.

The alfalfa crop has been limited to the first cutting in most sections. New seedings of alfalfa planned for this fall are being postponed pending sufficient soil moisture.

With favorable weather conditions this fall for sowing, it is expected that present high wheat prices and failure of other crops will encourage an unusually large acreage of winter wheat.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Sept. 1)

The weather during the last half of August was generally cool with frequent cloudiness and a little significant precipitation. The total precipitation was 0.51 inch. Rain on August 19 and 21, amounting to 0.44 inch altogether, provided, for the first time since April 30, enough moisture for germination of seed. Wheat from Arizona seed sown May 25 is just emerging. Also some weed seedlings are just emerging. Russian thistles have increased in size since the recent rainfall and will provide some feed for stock. Some of the earliest flax was harvested August 28.

Grasshoppers are still fairly numerous. Hordes of sugar beet webworms have appeared recently and are feeding on Russian thistles.

President Franklin D. Roosevelt on August 27 made a tour of points of interest in the drought area around Bismarck and Mandan. Supt. J. M. Stephens rode in the car with the President on the trip over the experiment station.

Dr. C. J. Eide, of the University of Minnesota Plant Pathology Department, visited the station August 31.

The maximum temperature was 93° on the 17th and the minimum 47° on the 24th and 29th.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, E. C. Coey) (Sept. 1)

Temperatures for the Month were: maximum 93°; minimum 40°; mean 66°.

Precipitation for August was 2.26 inches which occurred on twelve dates throughout the month.

The soil has sufficient moisture to bring fall grains along rapidly and much winter wheat is being seeded in this community.

The test weight of spring wheat grown at this station varies from 51 for Thatcher to 57 for Ceres and 58 for Baart. Yields range from 2 bu. per acre for Kubanka to 5.3 bu. per acre for Baart.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Aug. 31)

The month of August was about normal for mean temperature, precipitation, and evaporation. The mean temperature for August was 68.5° and the precipitation 0.78 inch. There was an excess of cloudy weather accompanied by high humidity for this region. Difficulty was experienced in drying crops and threshing.

Winter wheat gave poor yields generally and was badly infested with weeds. Crops on the irrigated areas were good, although cereals suffered in many cases from hard winds and rains as well as rust. On the Experiment Farm yields of wheat under irrigation exceeded 80 bushels per acre, barley varieties reached 110, and oats 150 bushels per acre, respectively. The first harvest of flax showed the following average yields:

Variety	Bu. per acre
Bison	38.1
Rio	32.0
Linota	32.0
Buda	31.9
Redwing	29.2

The season had been unfavorable for barley genetic studies. Early, warm spring weather caused many varieties to exhibit a pronounced winter habit where no indications of such could be detected during the past 5 years. Much of the material was badly bleached.

Dr. J. H. Martin was a station visitor during the latter part of August.

OREGON

SHERMAN COUNTY BRANCH STATION, MORO (Cereal Agronomy, D. E. Stephens) (Aug. 20)

Harvesting of the grain crop in the Columbia River Basin of Oregon is nearly completed. In most sections yields have been about normal. In Sherman County, the total production of wheat will be greater than in any year since 1928. On the lighter lands fair yields were obtained this year. Most farmers are reporting yields of from 15 to 25 bushels per acre.

About 1 inch of rain in the first half of June resulted in elongation of the culms in practically all the cereals, so that the straw of all varieties this season was tall enough to bind, For many years past most varieties, especially of spring barleys and wheats, were too short to cut with a binder.

The total precipitation for the crop year of 1936 (Sept. 1 to July 31) was 11 inches--about the normal for that period. The highest temperature yet recorded this season was 99° on July 20. The mean temperatures for June and July were about normal, 61.7° for June and 69.4° for July.

The following tables give the yield data and test weights for the cereals grown in the varietal experiments this year. In the winter wheat trials, rather severe winter-killing occurred in two series located on a north slope. Because of the rather tall straw and the deficiency of soil moisture during the later part of the growing season, the weights per bushel were low this year, especially for the spring grains.

Acre yield, in bushels, of winter wheat varieties grown at Moro, Oreg. in 4 twentieth-acre plots in 1936

Variety	C. I. no.	Yield (Bu. per acre)	Test weight
Turkey sel.	11424	23.7	57.2
Triplet	5408	23.7	57.7
Hybrid 128 x White Odessa	11607	23.3	57.2
Cheyenne	8885	23.3	58.3
Kharkof	1442	22.4	56.0
North Powder	11425	21.5	58.0
Local Turkey	4429	21.3	57.0
Rio	10061	20.9	57.3
Fortyfold x Hybrid 128	11755	20.6	58.0
Oro	8220	20.5	58.1
Hybrid 128	4512	20.5	57.5
Turkey	1571	20.5	56.7
Rex	10065	19.6	56.3
Turkey sel.	10016	19.1	57.0
Blackhull	6257	18.9	58.6
Relief	10082	18.4	54.8
Ridit	6703	17.5	53.6
Golden	10063	16.3	56.1
Fortyfold x Federation	8247	13.4	56.8

Acre yield, in bushels, of spring wheat varieties grown at Moro, Oreg. in 3 twenthieth-acre plots in 1936

Variety	C.I.no.	Yield (Bu.per acre)	Test weight
Hard Federation 71	8256	27.0	58.2
Hard Federation 31	8255	26.6	57.2
Hard Federation	4733	26.1	55.2
White Federation	4981	25.0	58.5
Federation	4734	2[illegible].0	51.2
Onas	6221	22.0	50.8
Baart x Federation	8254	19.5	52.6
Pacific Bluestem	4067	19.4	51.6
Marquis	4158	17.8	49.0
Baart	1697	17.6	52.1

Acre yield, in bushels, of oat varieties grown in 3 twentieth-acre plots at Moro, Oreg. in 1936

Varity	C.I.no.	Yield (Bu.per acre)	Test weight
Threegrain	1950	52.1	28.5
Markton	2053	51.9	28.5
Carleton	2378	51.9	29.9
Siberian	635	50.6	28.8
Swedish Select	134-1	49.6	28.6
Richland	787	49.6	31.3
Iogold	2359	49.0	30.9
Sixty-Day	165-1	48.1	29.5

Acre yield of spring barley varieties grown in 3 twentieth-acre plots at Moro, Oreg. in 1936

Variety	C.I.no.	Yield (Bu.per acre)	Test weight
Peruvian	935-1	47.5	38.6
Flynn	1311-1	45.3	39.8
Flynn	1311-37	45.0	39.7
Club Mariout	261	43.4	40.8
Meloy	1176-3	42.4	38.2
Trebi	936	39.1	35.4

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Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
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Vol. 28 September 25, 1936 No. 15

Personnel (Sept. 11 - 25) and Field Station (Sept. 1 - 15)

PERSONNEL ITEMS

Mr. C. E. Chambliss left Washington on September 18 for Minnesota and Wisconsin to confer with representatives of the Bureau of Indian Affairs on the production and improvement of wild rice on Indian reservations.

Mr. F. A. Coffman left Washington on September 16 for Minneapolis, Minn., where he will assist in the emergency seed purchase program.

Mr. L. W. Kephart left Washington on September 17 for points in Kansas, Nebraska, Iowa, Minnesota, Wisconsin, Michigan, Indiana, Kentucky, and Ohio to inspect cooperative weed control experiment plots.

RECENT PUBLICATIONS

Identification, History, and Distribution of Common Sorghum Varieties. H. M. Vinall, J. C. Stephens, and J. H. Martin. U. S. Dept. Agr. Tech. Bull. 506, 102 pp., 59 pls., 26 figs. July 1936.

Inheritance of Complementary Dwarfing Factors in Wheat. V. H. Florell and J. Foster Martin. Jour. Agr. Research 53(2): 151-160, fig. 1. July 15, 1936. (G-1020) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Idaho and Oregon agricultural experiment stations.)

Effect of Source, Quality, and Condition of Seed upon the Cold Resistance of Winter Wheats. C. A. Suneson and George L. Peltier. Jour. Amer. Soc. Agron. 28(9): 687-693. September 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the departments of agronomy and plant pathology of the Nebraska Agricultural Experiment Station.)

A Method for Studying Resistance to Drought Injury in Inbred Lines of Maize. James W. Hunter, H. H. Laude, and Arthur M. Brunson. Jour. Amer. Soc. Agron. 28(9): 694-698, fig. 1. September 1936. (Joint contribution from the department of agronomy of the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

The Effect of Latent Infection on the Smut-Resistant Markton Oat. Harland Stevens. Jour. Amer. Soc. Agron. 28(9): 711-713. September 1936. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Idaho Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)
(Sept. 18)

Weather conditions in August were not so extreme as in August 1935. The maximum temperature for the month was 95°, while last year the maximum was 103°. The minimum temperature of 67° was the same as for August of last year. The precipitation of 3.62 inches was 3.54 inches less than in August last year and 1.82 inches less than the 26-year average. The total precipitation so far for the year is 29.35 inches, which is 9.17 inches less than it was for the same period last year.

Frequent showers during the last 10 days of August interfered with the harvest of commercial fields of early maturing rices. In spite of the fact that many farmers threshed their early crops before they were well cured, good prices were received. The indications are that rice yields and prices will be good.

Work on the station has progressed satisfactorily. The indications are that yields of rice in some of the rotation experiments will be much below those of last year.

According to the "Estimate Rice Acreage 1936", compiled by The Rice Millers' Association, July 1936, the acreages of three rices released by the Rice Experiment Station were as follows:

Variety	Louisiana		Texas		Arkansas		Total for the three states	
	1935	1936	1935	1936	1935	1936	1935	1936
	Acres	Acres	Acres	Acres	Acres	Acres	Acres	Acres
Fortuna	19,811	21,886	9,273	13,719	-----	-----	29,084	35,605
Nira	11,668	12,559	2,095	10,893	1,700	870	15,463	24,322
Rexoro	16,483	35,674	14,760	20,822	-----	-----	31,243	56,496
Total	47,962	70,119	26,128	45,434	1,700	870	75,790	116,423
							Increase	40,633

ARKANSAS

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) [Sept. 1]

Helminthosporium leaf spot of rice was more prevalent this year in Arkansas and Texas than it was last year. No considerable change in amount was found in Louisiana when compared to last year.

Early stages of stem rot were found in Arkansas on August 12 and had caused considerable rotting of the sheaths in Louisiana by the 15th.

The leaf spot nursery at Texas Substation No. 4 near Beaumont this season was very successful. Sufficient spotting was produced to eliminate all but 2.1 percent of the lots tested for Helminthosporium leaf spot and all but 21 percent of those tested for other leaf spots. Fourteen selections listed as resistant to leaf spots in 1935 remained in the same group in 1936. The average severity of spotting was higher than in 1935.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Sept. 16)

Rains since the first of September have caused sorghums to "green up" and have also supplied moisture for sowing wheat. Row crops will produce forage and possibly some grain, depending on the variety and growing conditions until frost. Quick-maturing varieties that were planted late are in better condition to yield grain than the earlier planted standard varieties.

Dr. J. H. Martin visited Woodward and inspected the project on Sept. 12 to 14. Not much but blasted hopes to be seen.

The maximum temperature for the first half of September was 101° on the 1st and 2nd. The minimum for the same period was 57° on the 15th. There was a precipitation of 1.87 inches in four rains, starting with 0.96 inch on the 4th. For the remainder of this season temperature is likely to be the chief factor determining production.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Sept. 16)

Three gentle rains this month totaling 2.33 inches have put the wheat land in good shape for seeding. Many farmers in northwestern Oklahoma have already seeded their winter wheat. Some seeded in dry soil in the hope that rain would fall in time to germinate their grain and give them winter pasture. Immediate pasture is needed badly in some areas and a major part of the early seeded winter wheat will be used to fill that need.

The first seeding of a rate-and-date-of-seeding experiment was made on September 15.

Nursery planting plans and packeting of seed are in progress at present.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (Sept. 16)

The dry weather continued during the first half of September. The lack of rain during this period and during the latter part of August will prevent germination of winter wheat except on fallow preparation until rain comes.

The proso and foxtail millets have been harvested and threshing is in progress at the present time. The grain sorghums have matured and promise good yields on fallow. Several varieties appear promising. Winter wheat will be seeded this week.

The precipitation for the first half of September was 0.06 inch. The maximum temperature was 93° on the 14th and the minimum, 37° on the 15th.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Sept. 16)

The drought situation in this locality has been greatly altered by recent abundant and frequent rainfall. The precipitation during the first half of September amounted to 1.38 inches -- more than the average precipitation for all of September. This came too late to ameliorate materially the effects of the drought in this locality but has provided moisture for some fall growth of vegetation that survived the drought and for germination of rye and other seed.

The winter-hardiness winter wheat nursery was sown September 8 and has emerged with fair stands.

Most of the flax nursery is practically through blooming but is still too green to harvest.

The time available as a result of loss from drought of current material to be harvested and threshed has afforded a favorable opportunity to classify flax genetic material from previous years stored unthreshed in the seed house. Most of this material has been disposed of.

The maximum temperature was 92° on the 1st and the minimum 36° on the 15th.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Sept. 16)

The yields from the 1936 nurseries at Langdon and Fargo were lower than in any previous year since 1928. Yields at Langdon from the better hard red spring wheats averaged about 12 bushels per acre and at Fargo about 9 bushels.

Ceres produced uniformly high yields and in the durum area showed up well, possibly because it headed three or four days earlier than the durums. The durums headed so near the time of the severe heat in July that their fertility was injured. Mindum and Kubanka, though often weighing 59 or 60 pounds per bushel on farm samples, produced much rougher seed than Ceres and even rougher than Pentad or Monad, which headed the same time.

Seed from the Langdon nursery averaged fully five pounds heavier in test weight per bushel than the same wheats at Fargo. Injury from heat and drought at Langdon was severe enough to bring out clear differences in plumpness of seed of different varieties, and considerable time will be spent in studying the differences.

The uniform winter hardiness nursery was sown at Langdon on August 19, and several showers should have produced normal fall growth.

An outside planting, in pots, has been made of F_1 hybrid plants and parents for crossing in the greenhouse this winter. It has been difficult to protect these plants from crickets. If they survive, they will be transplanted in the greenhouse before killing frosts.

MONTANA

JUDITH BASIN BRANCH STATION, MOCCASIN (Cereal Agronomy, E. C. Coey) (Sept. 16)

The minimum temperature of 27° so far this month occurred Tuesday night, September 15. This is the first killing frost of the season. This station has had 130 frost free days this year. The 26-year average is 121 days.

Winter wheat growing conditions are ideal. For the most part it has only required 7 days from date of seeding to date of emergence for varieties and nursery wheats. There has been a precipitation of 0.52 inch during the first 15 days of the month. This, added to the 2.26 inches received last month, has put the soil in good physical condition with plenty of moisture.

Average yield of wheat varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1936

Variety	C.I. no.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Baart	1697	5.3	58
Thatcher	10003	4.5	51
Kota X Marquis	11549	4.5	56
Ceres	6900	4.1	57
Marquis	3641	4.1	55
Kota X Marquis	10014	4.1	56
Comet	11465	4.0	55
Renown	11709	3.9	55
Supreme	8026	3.8	55
Reward	8128	3.8	57
Canus	11637	3.7	56
Hard Federation X Hussar	11792	3.6	52
Hope X Ceres	11428	3.3	55
Reliance	7370	3.2	55
Hope	8178	3.1	53
Hard Federation X Hussar	11442	3.0	53
Marquis (Richmuth)	--	2.9	54
Federation	4734	2.9	53
Double Cross	11722	2.6	53
Kubanka	1440	2.0	58
Power	3697	1.6	56

Average yield of barley varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1936

Variety	C.I. no.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Composite Cross selection	5414	9.3	43
Composite Cross selection	5438	9.2	37
Composite Cross selection	5429	8.8	42
New Composite Cross (Spring)	5461	8.3	40
Atlas	4118	8.3	36
Composite Cross	4116	7.8	40
Trebi	936	7.2	37
Composite Cross selection	5431	7.1	39
Mechanical Mixture	4115	6.2	40
China	4197-1	5.5	42
Horn	926	5.5	42
Coast	690	5.1	36
Himalaya	620	4.0	57
Hannchen	531	3.2	43

Average yield of oat varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1936

	C.I. no.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Selection 357-185	----	20.1	33
Carleton	2378	17.3	30
Gopher	2027	17.0	30
Markton X Victory	2606	14.8	30
Markton X Idamine	2576	14.7	29
Selection 357-169	----	14.5	32
Selection 357-168	----	13.4	31
Markton	2053	13.3	32
Markton X Swedish Select	2665	12.9	32
Swedish Select	134	11.7	30
Sixty-Day	165	7.8	30

Average yield of flax varieties grown in four 1/50th-acre plots at the Judith Basin Branch Station, Moccasin, Mont., 1936

Variety	C.I. no.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Redwing	499	3.0	54
Newland	188	2.6	53
Linota	244	2.3	53
Selection	739	2.2	52
Bison	389	2.0	52
Siberian no. 206	473	2.0	53
Selection	737	1.4	52
Rio	280	1.4	50

Safflower (Russian no. 14) grown in comparison with flax varieties was a failure due to drought and grasshoppers. Flax also was damaged by grasshoppers.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Sept. 15)

The growing season for the year 1936 was very unusual in that precipitation was low in March and April and temperatures in April were unseasonably warm. Plants tillered very little, particularly of such varieties as Federation and Rex. When heavy rains came early in June, the early varieties were not benefited to so great an extent as the late varieties. Relative yields in many instances are not comparable to those found in a normal year. In some cases, relative dates of heading between varieties were the reverse of those ordinarily found.

Yields of winter wheat, spring wheat, spring oats, and spring barley are given in the accompanying tables.

A total of 0.88 inch of rain has fallen so far in September. This should be sufficient to put the soil in condition for seeding at the normal time.

Average yield of winter wheat varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1936

Variety	C.I. no.	Yield (Bu. per acre)
Triplet	5408	41.5
Jenkin	5177	41.4
Fortyfold x Hybrid 128	11700	41.3
Rio	10061	39.2
Turkey selection	11424	39.2
Hybrid 128	4512	38.7
Hymar	11605	38.3
Oro	8220	38.3
Kharkof	1442	38.3
Hybrid 128 x Martin	11606	38.2
Golden	10063	37.8
Rex	10065	37.4
Ridit	6703	37.2
Hybrid 128 x White Odessa	11607	36.9
Albit	8275	36.6
Federation	4734	36.2
Rex selection	11689	35.3
Goldcoin	4156	31.9

Average yield of spring wheat varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1936

Variety	C.I. no.	Yield (Bu. per acre)
Federation x Bunyip selection 49	--	48.2
Federation	4734	47.3
Onas	6221	47.1
Federation x Bunyip selection 41	--	46.7
Baart x Federation	8254	45.9
Sunset x Boadicea	11706	45.0
Hard Federation 31	8255	44.2
White Federation x Federation selection 24	--	44.0
White Federation	4981	42.0
Baart	1697	40.6
Marquis	4158	40.1

Average yield of spring oat varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1936

Variety	C.I. no.	Yield (Bu. per acre)
Markton x Swedish Select	3013	78.0
Markton	2053	77.0
Markton x Victory	2591	76.2
Sixty-Day x Markton	2352	74.5
Markton x Scottish Chief	3022	74.2
Markton x Ligowa	3025	73.9
Markton x Idamine	2570	71.9
Carleton	2378	67.6

Average yield of spring barley varieties grown in four 53rd-acre plots at the Pendleton Field Station, 1936

Variety	C.I. no.	Yield (Bu. per acre)
Trebi	936	63.0
Flynn selection	5911	57.5
Flynn selection 37	5918	56.8
Peruvian selection 1	5912	55.5
Club Mariout	261	55.2
Composite Cross selection	5449	47.4
Meloy selection 3	4656	45.4
Arequipa	1256	42.6

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Vol. 28 No. 16

October 10, 1936

Personnel (Sept. 26 - Oct. 10) and Field Station (Sept.16-30)

PERSONNEL ITEMS

Mr. C. E. Bode went to State College, Pa., on October 8 to confer with officials of the State agricultural experiment station regarding research on the quality of soft wheat.

Dr. J. G. Dickson was in Washington October 1 to 5 and again October 8 and 9 for the purpose of discussing with Division personnel various phases of the cooperative barley quality program that is being conducted at the Wisconsin Agricultural Experiment Station at Madison, Wis.

On October 5 to 7 Dr. Dickson attended the convention of the Master Brewers' Association at Philadelphia, where he gave a paper on the technical program presenting various aspects of the quality research as they affect environmental and other relationships and quality of barley for malting purposes.

Dr. H. L. Shands, of the Wisconsin station, who assisted Dr. Dickson during the period of the meetings, returned with him to Washington for the purpose of discussing oat breeding problems with Division personnel.

Dr. M. T. Jenkins was in Clay, Lancaster Co., Pa., on October 9 to harvest cooperative experimental corn plots.

Mr. C. H. Kyle returned to Washington on September 30, having been engaged in cooperative corn breeding work at the Georgia Coastal Plain Experiment Station, Tifton, Ga., since the middle of June. The experiments were begun in early April during a period of excessive rainfall that resulted in broken stands and retarded growth. Most of the seed was planted later and the stand and growth obtained from this planting were good. During most of the growing period the rainfall was light and moisture deficiency was indicated by burned leaves. However, good seed was obtained from all of the breeding material. The quality of the seed was unusually good because the dry weather in August and September was unfavorable

to ear rots. Although neighboring farmers think the season was too dry for corn production, the yield test of experimental crosses produced from 48 to 63 bushels per acre, which is more than is usually produced by farmers in "good" corn years.

Credit for the advantageous yields from the experimental corn is due mostly to the practice of growing it in rotation with velvetbeans. A heavy growth of the bean vines is plowed under preceding the planting of the corn and, in decaying, not only supplies all of the nitrogen used by the corn but increases the water-holding capacity of the sandy soil to the point where it can produce a corn crop in a year like the one just experienced.

The following is taken from a letter received by R. W. Leukel from T. W. Wood and Sons, Richmond, Va., in whose seed house there was installed for testing, in the fall of 1935, an automatic grain and fungicide feeder designed in cooperation with W. M. Hurst and associates of the Bureau of Agricultural Engineering and used in connection with a seed-treating outfit of the gravity type. This automatic grain and fungicide feeder is fully described and illustrated in Mimeograph No. 3042, "Dust fungicide feeders for use with seed-treating equipment", of the Division of Mechanical Equipment, Bureau of Agricultural Engineering, U. S. Dept. of Agriculture. The outfit worked so satisfactorily that a number of similarly constructed machines were made and put into operation by the seed concern. Mr. Wood writes as follows: . . . "I am writing you to let you know that our new automatic smut treating machines are operating most satisfactorily and saving considerable labor in the treatment of seeds. We are now treating free of charge all our seed wheat, oats, barley, and cotton seed, and treating seed corn at a small extra charge where requested. We are now planning on treating most, if not all, of our garden seed."

After a successful trial in the Richmond seed house the mechanism was sent to the experiment station at Ithaca, New York, for demonstration purposes.

On October 2 R. W. Leukel visited a number of mills in Fauquier and Culpeper Counties, Virginia, to obtain a supply of 1936 wheat nematode galls for completing certain studies on reviviscence in and longevity of the causal organism Anguillulina tritici. He also visited a farm near Manassas on which had been found a crop of badly infested wheat in 1934. The farmer, following instructions, had secured a different lot of seed and had sown it on land cropped to corn the previous year. No trace of galls could be found in the threshed wheat. The invariable presence of nematode galls in the screenings examined at a number of mills indicates that the disease is generally prevalent but not very severe. One lot of wheat received at the Warrenton mill in September consisted of about 50 percent galls, according to the miller. This shows that the disease still is causing occasional severe losses on individual farms.

Reports received during the past two summers of the occurrence of this disease in certain counties in North Carolina and Georgia, where it had not been previously observed, indicate that it is still spreading.

Dr. G. A. Wiebe spent October 6 in seeding the cooperative barley nursery at Kearneysville, West Va.

RECENT PUBLICATIONS

A Cytogenetic Study of a Chromosome Fragment in Maize. M. M. Rhoades. Genetics 21(5): 491-502, illus. September 1936.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

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ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (Oct. 8)

The highest temperature recorded in September was 101.5° on the 4th; the lowest was 50.0° on the 25th. The temperatures were comparatively low during the latter part of the month. The average daily temperatures for September were: Maximum 91.9°, minimum 68.0°. There were nine showers totaling 2.63 inches.

The rains during the month came close together so that the rice harvest was not interrupted seriously. At this time most commercial fields have been cut, but most of the late rice and some early rice remains to be threshed. All the varieties grown on Station plots have been harvested except Nira, Iola, and Rexoro. Heavy rains the past two days have interrupted the harvesting and threshing of rice.

Winter oats were sown in field plots and nursery rows on September 29 and 30 and October 1. Quite a large commercial acreage has been sown on the prairie this year. The rain the past two days should be of great benefit to this crop.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Oct. 1)

The last half of September was rainy and cool. Sorghums have made rapid vegetative growth but little grain development. Unless frost holds off until very late there will be but little sorghum or broomcorn seed produced here this season.

The maximum temperature for the last half of September was 87° on the 23rd and the minimum 41° on the 29th. A rainfall of 1.66 inches was recorded on 9 of the 15days. The total precipitation for September was 3.53 inches.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (Oct. 2)

The seeding of winter wheat at the station was completed on September 22. The wheat sown on fallow has emerged to good stands; that sown on cropped land has not had time to emerge since the rains of the last week.

The grain sorghums have ripened with the exception of a few late-maturing varieties and probably will yield above the average. They will be harvested as soon as the ground is dry enough to permit a corn binder to be run in the field.

Beginning on September 24 and continuing until the 27th, 2.97 inches of precipitation were recorded. The rain later turned to snow. The soil is well soaked. The maximum temperature for the last half of September was 94° on the 25th and the minimum 31° on the 27th and 28th.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Oct. 1)

Weather conditions during the last half of Septembe have been favorable for the development of winter wheat and winter rye. Although there was only 0.08 inch of precipitation during this period there was sufficient moisture from the above average rainfall during the first half of September. Temperatures also continued moderate and favorable for plant growth. The first frost, which occurred at the experiment station September 26 with a temperature of 29°, killed tender vegetation but did not affect wheat, rye, or flax. A temperature of 18° the night of September 30 affected some of the green flax plants still standing in the field but apparently did not kill them and caused no apparent injury to winter wheat.

Harvesting of most of the flax nursery, of which sufficient seed from previous years was not available, was completed September 24. Varieties and individual plants that appeared especially productive were harvested in the hope that they might prove drought resistant. The remainder of the flax nursery will not be harvested because, as a result of poor, uneven stands, the comparative yields would be of little value.

The maximum temperature was 94° on September 22 and the minimum 18° on September 30.

OREGON

AGRICULTURAL EXPERIMENT STATION, CORVALLIS (Foot Rots of Wheat, Roderick Sprague) (Sept. 29)

In response to the many inquiries that are bing received at this Station regarding the relative merits of different copper compounds for bunt control the following information is supplied. This fall, basic copper sulphate is available on the market under the following names:

1. Basi-Cop, made by the Sherwin Williams Company, Cleveland, Ohio, primarily for dusting orchards.

2. Basul, made by the same company, but recommended only for seed-treating purposes.

3. Kopper King, marketed by the Acme White Lead and Color Works, Detriot, Mich., a subsidiary to the Sherwin Williams Company, by whom the product is manufactured. It is sold as a dusting material for orchards.

Basi-Cop is sold in bulk, in 5-pound bags, or in 50-pound drums by the Hood River Apple Growers' Association for 13 cents a pound.

Basul is sold at the local Sherwin Williams Company warehouse in 5-pound bags at 21 cents a pound. It is a relatively new product, and an active selling campaign is being carried on in the wheat-growing areas. An analysis of the material by R. H. Robinson of the Oregon Agricultural Experiment Station shows that it contains 51.6 percent copper as basic copper sulphate. Therefore, it seems that it is practically the same in composition as Basi-Cop although the latter sells for 8 cents per pound less than Basul.

These compounds are being included this fall in seed-treatment experiments, data from which will be obtained next June.

(According to a letter received from the manufacturers, Basul and Basi-Cop contain the same percentage of copper and there is practically no difference between them. The manufacturers also state that Basul is being offered through the grain elevators for the treatment of wheat and is sold only in 5-pound bags, whereas Basi-Cop is sold principally in the potato-, fruit-, and truck-growing sections and is offered in 100-pound bags.

The Sherwin Williams basic copper sulphate compound now being marketed as Basul was used in experiments at the Arlington Experiment Farm and found superior to basic copper carbonate for bunt control. R. W. L.)

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Oct. 1)

Harvesting and threshing of cereals at Logan have been completed during September. Yields in general have been above the average for this section, although the winter wheat was poor. Untimely frosts were responsible for the early harvesting of corn and grain sorghums this year. On September 15 and 16 temperatures dropped to 26° and 24°, respectively, at north Logan. Temperatures as low as 20° were recorded in the valley.

Fall seedings on the Experiment Farm are practically completed. Much of the winter wheat has already emerged to good stands. Weeds have been especially bad this season, making it necessary to cultivate the summer fallow excessively. Moisture in the surface soil has been reduced too low for germination of wheat, therefore the bulk of the winter wheat has not yet emerged except in a few isolated sections, such as the Little Pocatello Valley, where winter wheat was some 3 inches high on September 15.

The mean maximum temperature for September was 73.5° and the mean minimum 37.8°. The precipitation was 0.29 inch.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 October 25, 1936 No. 17

Personnel (Oct.11-25) and Field Station (Oct.1-15)

PERSONNEL ITEMS

Mr. J. W. Jones, who left here on August 6, spent the remainder of the month at the Texas Substation No. 4, Beaumont, in studying the segregation of hybrid material with Mr. H. M. Beachell. The first half of September was spent in the study of material at the Rice Experiment Station, Crowley, La., and the Rice Branch Experiment Station, Stuttgart, Ark. During the latter part of September and the first part of October Mr. Jones was at the Biggs Rice Field Station in California, assisting in making selections from hybrid material. In each of the principal rice growing States the indications were that a normal, or better than normal, rice crop would be produced.

Dr. J. H. Martin returned on Oct. 10 from a six-weeks trip. He reported that the drought this year caused severe damage to grain sorghum crops in most of the Great Plains area and caused failures of many of the varieties at nearly all experiment stations. Probably the most outstanding feature of grain sorghum production this year is the large acreage of Sooner milo and Cheyenne kafir, particularly in the western portion of the Great Plains. Early kalo outyielded all other grain sorghums at the North Platte Substation, North Platte, Nebr., and more than 400 bushels of this variety were produced on increase fields at the Substation.

RECENT PUBLICATIONS

Effect of Defoliation upon the Cold Resistance of Winter Wheat. C. A. Suneson and George L. Peltier. Jour. Amer. Soc. Agron. 28(10): 807-809. October 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Departments of Agronomy and Plant Pathology, Nebraska Agricultural Experiment Station.)

Methods Used in the Determination of Relative Amounts of Ear Rot in Dent Corn. Paul E. Hoppe and James R. Holbert. Jour. Amer. Soc. Agron. 28(10): 810-819, figs. 1-5. October 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station, the Illinois Agricultural Experiment Station, and Funk Bros. Seed Co., Bloomington, Ill.)

The Present Status of Seed Treatment, with Special Reference to Cereals. R. W. Leukel. Botanical Review 2(10): 498-527. October 1936.

Induced Mutations in Plants. L. J. Stadler. In Duggar, B. M., ed. Biological Effects of Radiation. 2: 1263-1280. New York and London, McGraw-Hill Book Co. 1936.

Two Species of Physalospora in England. Neil E. Stevens. Mycologia 28: 330-336. July/Aug. 1936.

Pathogenic Strains in Ustilago nigra. (Note) Phytopathology 26(10): 1033-1034. October 1936.

NOTICE

Division personnel who desire to attend the meetings of the American Association for the Advancement of Science to be held in Atlantic City, N. J., during the Christmas holidays should send in requests at once to Dr. M. A. McCall, Principal Agronomist in Charge. It will not be possible to obtain approval to attend with expenses paid, but it is probable that requests to attend, without expense to the Government, except for salary, will receive favorable consideration.

GROWING HULL-LESS OATS IN ILLINOIS

On June 12, 1936, the writer inspected a 20-acre field of hull-less oats on the farm of Mr. William M. Pohl, R.F.D. 6, Mt. Carmel, Wabash County, Ill. Mr. Pohl has been growing naked or hull-less oats on his farm since 1931 and kindly furnished the following annual acre yield in bushels: 1931, 42; 1932, 52; 1933, 30; 1934, 24; 1936, 40. In 1935 the crop was completely destroyed by floods.

Mr. Pohl's brother-in-law, who resides on an adjacent farm, also grows hull-less oats. These farmers sow 40 pounds of seed to the acre and usually treat with formaldehyde for smut control. In 1936, they failed to treat and consequently had from 3 to 5 percent smut infection in their hull-less oats.

Mr. Pohl is growing the New White Hull-less variety which was purchased from The Berry Seed Co., Clarinda, Iowa, in 1931. This variety apparently differs somewhat from both Liberty and Fowlds Hull-less, although it may be a variation from one of these varieties. It was noted that the variety produced very few awns under conditions in Wabash County.

According to Mr. Pohl, he has no trouble in storing hull-less oats. He claims that during one winter he stored 1,700 bushels over his corn crib and the oats kept in perfect condition. He further stated that he encountered no serious difficulties in threshing hull-less oats. This statement also was confirmed by a neighbor who runs an itinerant thresher and does Mr. Pohl's threshing. On further questioning he denied that in threshing hull-less oats the numerous fine hairs on the caryopsis cause serious irritation of the skin and mucous membrances of the throat and nasal passages of the threshing crew. He laughingly remarked that the men probably scratched their backs a little more than when threshing ordinary oats. Mr. Pohl stated further that he likes hull-less oats and is making money by growing them. He sells them for both feed and seed.

According to the claims made by Mr. Pohl, many of the objections raised to the growing of hull-less oats are not valid. However, he did not say anything regarding the use of seed more than one year old. It is known that hull-less oats lose their germinating power quickly, which may be somewhat of a handicap in attempting to grow them commercially.--T. R. Stanton.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins)
(Oct. 12)

The maximum temperature for September was 95° and the average maximum, 81°. The minimum temperature was 58° and the average minimum, 71°. The average mean temperature was 81°.

The total precipitation of 1.72 inches is 3.68 inches less than in September of last year and 2.33 inches less than the 26-year average.

Farmers took advantage of the fine September weather so that by the end of the month very little rice remained standing in the fields. The principal part of the rice crop left to be harvested is Rexoro, and as most of this variety was sown in early spring probably all of it will be cut by the middle of October.

The rice harvest on the Station has progressed with only a few interruptions caused by rain. Cotton picking was completed by the end of the month.

Mr. Daniel Saenz and his son of Bogota, Colombia, South America, were visitors September 29.

RICE EXPERIMENT STATION, CROWLEY (Rice Breeding, H. B. Jodon)
(Oct.20)

The season's field work, which has occupied all available time since the latter part of July, will soon be completed. The earliest nursery yield plots were harvested September 3 and the latest, October 16. Some hybrid material remains to be selected for improvement purposes, or harvested for genetic classification.

On the whole, nursery tests were in more satisfactory condition this year than last. The disease situation was similar to that of the preceding season, with an inconsequential sprinkling of Helminthosporium, much premature browning and discoloration on Blue Rose and other susceptible strains, and white tip prevalent on Blue Rose, Japanese, and some other types.

A large collection of desirable hybrid material in all generations from F_1 to F_8 is now on hand. This material indicates that in certain characteristics it may be possible to improve on the present commercial varieties. The Edith X Fortuna selections (F_8) again appeared to be superior in the early maturing group.

COLORADO

UNITED STATES DRY LAND FIELD STATION, AKRON (Wheat Improvement, J. J. Curtis) (Sept. 16)

Yield of winter wheat varieties grown in replicated plots, two on fallow and two on cornland, at the Akron Field Station, Akron, Colo., 1936

Variety	C.I.no.	Yield on fallow (Av.)	Yield on cornland (Av.)	Yield of 4 plots (Av.)
Turkey selection	10016	36.1	15.6	25.8
Early Blackhull	8856	24.9	15.6	25.2
Tenmarq	6936	34.5	15.2	24.9
Turkey x Marquis	11747	36.2	13.4	24.8
Akron no. 7	11660	35.7	12.5	24.1
Turkey selection	10094	34.4	13.9	24.1
Do.	10098	33.8	13.9	23.8
Cheyenne	8885	32.3	13.2	22.7
Blackhull	6251	30.6	14.0	22.3
Kanred	5146	31.8	10.4	21.1
Kanred x Marquis	11746	29.3	12.1	20.7
Kharkof	1442	27.2	11.8	19.5
Nebraska No. 60	6250	27.2	11.5	19.3
Minturki	6155	27.2	11.0	19.1
Kharkof	1583	27.4	10.8	19.1
Oro	8220	27.7	10.3	19.0
Turkey selection	11375	25.8	10.8	18.3
Yogo	8033	23.4	10.1	16.7
Alton	1438	17.1	9.1	13.1

Yield of spring wheat varieties grown in replicated plots, two on fallow and two on cornland, at the Akron Field Station, Akron, Colo., 1936

Variety	C.I.no.	Yield on fallow (Av.)	Yield on cornland (Av.)	Yield of 4 plots (Av.)
Prelude	4323	13.7	8.6	11.2
Quality	6607	12.4	6.2	9.3
Reward	8182	12.8	5.9	9.3
Comet	11465	11.1	6.8	8.9
Hard Federation	4733	12.4	5.1	8.7
Kearney	6585	9.6	6.2	7.9
Kota x Marquis	8385	7.0	4.9	5.9
Thatcher	10003	7.0	4.7	5.8
Ceres	6900	6.8	4.9	5.8
Converse	4141	6.8	4.4	5.6
Komar	8004	5.8	4.5	5.2
Supreme	8026	7.0	3.2	5.1
Hope x Ceres	11428	5.5	4.2	4.8
Reliance	7370	5.3	3.4	4.3
Hope	8178	4.5	2.6	3.6
Marquis	3641	4.4	2.6	3.5

Yield of oat varieties grown in replicated plots, two on fallow and two on cornland, at the Akron Field Station, Akron, Colo., 1936

Variety	C.I.no.	Yield on fallow (Av.)	Yield on cornland (Av.)	Yield of 4 plots (Av.)
Burt x Sixty-Day (H.C. 752)	----	51.6	28.5	40.1
Trojan	2491	49.2	28.5	38.9
Fulghum (H.C. 713)	3228	49.2	27.1	38.2
Frazier	2381	43.6	30.9	37.3
Kanota	839	47.1	26.0	36.6
Fulghum (H.C. 726)	3227	46.4	23.5	35.0
Early Red Rustproof	2823	40.5	26.7	33.6
Fulghum x Markton (Kans.6136)	3220	44.3	22.9	33.6
Brunker	2054	44.7	18.0	31.3
Columbia	2820	33.4	17.3	25.3
Richland	787	29.2	12.0	20.6
Kherson	459	26.7	14.1	20.4
Swedish Select	134	2.3	2.3	4.3
Colorado No. 37	619	5.6	2.5	4.0

Yield of barley varieties grown in replicated plots, two on fallow and two on cornland, at the Akron Field Station, Akron, Colo., 1936

Variety	C.I.no.	Yield on fallow (Av.)	Yield on cornland (Av.)	Yield of 4 plots (Av.)
Club Mariout	261	36.8	19.7	28.3
Blackhull selection 1180	6009	36.4	16.4	26.4
Vaughn	1367	38.2	14.1	26.1
Blackhull selection 1178	5679	35.6	15.5	25.5
Spartan	5027	32.1	15.7	23.9
Flynn	1311	28.8	15.7	22.3
Blackhull	878	30.5	13.6	22.0
Coast	690	28.9	14.3	21.6
Pryor	2359	28.6	14.3	21.5
Coast x Lion (F. C. 1110)	----	28.8	13.4	21.1
Composite Cross selection	5414	26.1	15.0	20.5
Vance Smyrna	4585	24.9	12.9	18.9
Trebi	936	22.3	13.1	17.7
Himalaya	620	19.3	7.3	13.3

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Oct. 17)

The first half of October was cool with one week of rainy weather. Since the rains started in September the sorghums have greened up a lot and many are heading and blooming at present. There is little or no chance for them to mature any seed. The only grain that will be made here this year is that which developed during the dry, hot summer or immediately afterwards; the sorghums that stopped growth and are now developing new heads are too late to mature seed this season.

Some seed heads have been harvested, and it is developing into a contest with the crows to get what little grain has ripened or is ripening. Most of the sorghums will make fair forage yields but the grain crop will be the lowest in the Station's history.

The maximum temperature for the first half of October was 83° on the 5th, and the minimum, 43° on the 7th and 8th. The precipitation was 1.57 inches measured on 5 days.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Oct. 15)

After a record-breaking summer the last few weeks have been more enjoyable. As has been noted before, the summer was characterized by unusually high temperatures and very little moisture. Some difficulty was encountered in preparing seed beds for winter wheat due to the very dry condition of the soil.

The winter wheat varieties were seeded in plots on September 22 and 23. The winter wheat nursery seedings were started on September 25 in very dry soil. On September 26 all field work was stopped by a most welcome 1.6 inch rain. Although this delayed seeding for several days it did insure good stands. The nursery seedings, except later dates and the bunt nursery, were completed by October 3, and all material has emerged to good stands. Continued favorable weather is allowing a good growth to develop. Although the surface 6 or 8 inches is moist, below that level the soil is dry.

Mr. R. O. Weibel and Mr. Orrin J. Webster, of North Platte, seeded the winter wheat nurseries at Alliance and North Platte about the middle of September. At both stations the soil was very dry. It has been reported that spotted stands were obtained at North Platte.

Dr. John H. Martin visited Lincoln on October 3 to 5.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.) (Oct. 16)

Severe drought conditions again prevail following the brief interlude of rainy weather early in September. No precipitation was recorded during the first half of October.

The winter wheat in the winter hardiness nursery has made good growth and does not yet appear to be suffering from drought but may require more moisture to enable it to withstand severe winter cold. Spring wheat sown last spring that came up this fall also has made some growth and so far shows no apparent frost injury.

Threshing of the flax nursery material is completed. Some of the late flax that remains standing in the field is still alive and occasional blooms have been noted in the last few days.

The maximum temperature was 88° on the 8th and the minimum, 24° on the 12th.

A light, gentle rain, which, it is hoped, may mark the beginning of a general rainy period, commenced falling just before noon today.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Oct. 17)

Dry weather has continued this fall up to the present time, unrelieved by rains such as have fallen in sections farther east. The winter grains sown in plots and nursery have not yet germinated.

Although several severe frosts have occurred but little damage has been done, as the usual crop of tender vegetables in this section was almost a minus quantity because of the drought, and the corn that survived the drought and hoppers was long ago pastured off by livestock.

Most of the seed produced in the nursery has been cleaned and stored for winter.

Progress is being made on the annual cereal report.

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DEC 5 1936

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 18

November 10, 1936

Personnel (Oct. 26-Nov. 10) and Field Station (Oct. 16-31)

PERSONNEL ITEMS

Mr. C. E. Chambliss returned on October 31 from a 2-weeks trip in South Carolina, Georgia, and Florida. He inspected experimental plots of perennial, Patna, and wild rices and conferred with cooperators in the investigations. Mr. Chambliss spent four or five days in exploring for wild rice in northeast Florida and the southeastern part of Georgia.

RECENT PUBLICATIONS

Toxicity of Selenium-Containing Plants to Aphids. A. M. Hurd-Karrer and F. W. Poos. Science 84(2176): 252. September 11, 1936.

Permanent Pastures for Cattle Production in the Rice Area of Southwestern Louisiana. J. Mitchell Jenkins. La. Agr. Expt. Sta. Bull. 276, 7 pp. October 1936. (Cooperation between the Louisiana Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

DELAYED PAY ROLLS

Semimonthly pay rolls are being delayed because DUTY STATUS report cards are not being received promptly.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF DIRECTOR OF PERSONNEL
WASHINGTON, D. C.

October 14, 1936.

Personnel Circular No. 31

EMPLOYEES MAY NOT BE EXCUSED FROM DUTY ON

LOCAL, STATE, AND TERRITORIAL HOLIDAYS

In accordance with an opinion from the Solicitor of this Department, dated September 30, 1936, there is no authority in law for the Secretary of Agriculture or any subordinate official in the Department of Agriculture to authorize the closing of a Government office or the excusing of Government employees from duty on local holidays. The new annual leave regulations, section 11, provide only for the non-charging of annual leave on "Sundays, legal holidays and holidays declared by executive order, and non-work days established by administrative order in accordance with law." This language does not contemplate local holidays but is restricted to national holidays, unless otherwise declared by executive order.

It follows that if an employee is excused from duty on a local holiday, the absence must be deducted from his annual leave. The one exception to this rule heretofore recognized by the Solicitor's office in keeping with opinions of the Court of Claims and decisions of the Comptroller General is that in cases where an employee reports for duty, or is in position to report for duty and the Government is not in position to utilize his services, the employee is entitled to compensation for such duties and his enforced absence is not deductible from his annual leave. That is to say, if the buildings in which the departmental employees in the state or territory are stationed are closed on local holidays, or for some similar other reason employees who work in the open find it impossible to perform their usual services, they may be excused from duty without deductions being made from their annual leave.

Furthermore, it is not believed that the non-application of the 7-hour work day to the field service will allow administrative officers to anticipate <u>local</u> holidays, excuse employees thereon, and so stagger the hours that such employees may be required to work extra hours on days preceding or following said holidays so as to bring their working hours up to a weekly minimum of 39, for the reason that the holiday statutes take no cognizance of local holidays but relate solely to holidays declared by law or executive order. It is not, therefore, within the province of any local administrative officer to create or make possible a non-work day which falls outside the provisions of statutory law.

W. W. STOCKBERGER
Director of Personnel.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Office of Accounts

November 6, 1936.

MEMORANDUM ON GASOLINE TAXES

The Government tax exemption form No. 1094 should be used in connection with purchases of gasoline for official use in the open market. Where a dealer grants exemption from tax he should be furnished the exemption certificate properly filled out and signed by the Government representative. The voucher covering payment for gasoline should be clearly marked "TAX EXEMPT", and the purpose for which the same was secured should be shown. Since the new tax exemption form does not provide an additional copy for a receipt (for cash payments) the Government subvoucher form 1012d should be signed by the dealer and submitted with reimbursement voucher as required by the Travel Regulations, and it should be stated that cash payment was necessary.

WHERE TAX EXEMPTION IS REFUSED:

Form 1034 (Purchase) Vouchers:

Render vouchers in duplicate, both copies to be signed by the dealer for the full amount, and itemized to show basic cost of gasoline and tax rate, and whether the dealer pays the tax direct to the State or to a distributor. Both copies of voucher must also show that dealer refused to accept the tax exemption certificate. The tax exemption certificate properly filled out to show that tax is included in price charged (and signed by dealer if possible) should accompany voucher. The additional copy of voucher should be clearly marked "DUPLICATE" to prevent the possibility of payment being made on both copies.

Form 1012 (Reimbursement) Vouchers:

Where cash payments are necessary and tax exemption is refused, take form 1012d subvouchers in duplicate, both copies to be signed by dealer and to show the same information as for form 1034 vouchers described above. General statements in the body of the expense account are not sufficient, since the duplicates are withdrawn from the account for submission to the States which require the information before granting refund of the tax. The tax exemption certificate completed to show that tax is included in price and signed by dealer if possible, should accompany charges for gasoline which include the tax.

It will be noted that the above instructions deal primarily with obtaining exemption from State taxes on gasoline. The new form 1094 may be used, however, in obtaining exemption from Federal or local taxes. It is not required that exemption be secured from Federal taxes, but every reasonable effort should be made to secure exemption from State or local taxes on gasoline or other supplies for the exclusive use of the United States.

A.L.S.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. M. Jenkins) (Nov. 3)

All rice plots on the Station have been harvested except late maturing ones in the date-of-seeding experiment and in the breeding nursery.

Excellent harvest weather prevailed during October. Precipitation occurred on 5 days, but most of it fell on 2 days. The good weather enabled farmers to proceed with harvest operations with only two short delays. At the end of the month there remained only a few fields of unthreshed rice. This was due partly to the weather and partly to the early date at which the bulk of the crop was sown, particularly the Rexoro variety. Most farmers profited by their experience of last year and by information given out by this Station, and seeded Rexoro early in the spring.

The total precipitation of 1.57 inches is 1.99 inches less than the 26-year average.

The maximum temperature was 92° and the average maximum, 81°. The minimum temperature was 45° and the average minimum, 57°. The average mean temperature of 69° is 3° less than it was for the same month last year.

Dr. Giacomo Peroni, Ex-Deputato al Parlamento, Rome, Italy, was a Station visitor on October 6. Dr. Peroni was especially interested in obtaining information pertaining to, and seed of, Rexoro rice. He was on his way to Mexico City, Mexico, and Bogota, Colombia, S. A., for the purpose of starting investigational work relative to medicines that he hopes will prove effective in the control of malaria.

October 9, Dr. W. R. Dodson, of Louisiana State University, and his class in Agronomy spent the day with the Station staff making a study of the work of the Station. and the commercial methods of growing and milling rice.

October 27, Prof. J. L. Fletcher of Southwestern Louisiana Industrial Institute, Lafayette, La., and his class in Agronomy spent the afternoon at the Station for the purpose of getting information on the different lines of work under way.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice Production and Improvement, C. R. Adair) (Nov. 6)

The fall-sown oats at the Station are in fine condition. Stands are excellent, perhaps better than average. Owing to abundance of moisture plant growth has been normal. Stand counts have been made on the uniform winter-hardiness nursery. The oat hybrid material that was sent from the Division was received and sown on October 17. Frosts have occurred during the past three nights.

AGRICULTURAL EXPERIMENT STATION, FAYETTEVILLE (Rice Diseases, E. C. Tullis) (Oct. 29)

A field of short-grain rice and one of Early Prolific rice attacked by Piricularia oryzae near Almyra, Ark., were inspected on October 8. The rices were growing on new land cleared of woods during the winter of 1935. It was by far the most severe infestation the writer has ever seen. The short-grain rice was dwarfed and many of the first tillers had been killed and the yield had been reduced by at least 50 percent. The Early Prolific was less severely affected but even in it numerous plants were found with a single bearing tiller, the main culm having been killed early in the season. In the Early Prolific many culms were broken over at the second or third internode above the crown. The causal fungus, Piricularia oryzae, was found associated with spots on leaves, rachis, and culms and was cultured from these organs.

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Oct. 15)

The drought which prevailed throughout the months of June, July, and August continued until September 14. During the period from September 14 to 27, 9.75 inches of rain were recorded. This is 7.01 inches above the September normal and one of the highest monthly rainfall records in the history of the Substation. Temperatures have been about seasonal.

During the first part of October seed beds were prepared as rapidly as possible and seeding of experimental and field wheat completed as rapidly as possible. At this writing seeding is well under way and will be completed this week. In most instances seed beds are in good condition, although some of the nursery seed beds have lost surface moisture to such an extent that additional showers will be necessary to bring up the seed.

During the rainy period at Denton, the writer made the usual fall trip to Amarillo and vicinity and seeded the cooperative varietal tests and the experimental nursery. Conditions in the Panhandle of Texas are more favorable for wheat seeding than they have been in years. Most of the area has sufficient moisture to cause germination of wheat and some sections have abundant subsoil moisture. Much wheat has been sown on terraced land on the contour.

(November 1)

The weather conditions during the first part of October were favorable for seeding. A rainfall of 3.72 inches during the period from Oct. 22 to 28 prevented field work the latter part of October. Temperatures during the month were below normal. The mean temperature of 62.2° is 4.3° below normal. It is the coldest October since 1923. However, there has been no frost so far.

Tests and measurements on inheritance material in the strength of straw studies were completed and seeding of this material was completed near the close of the month.

Reports from the Texas Panhandle indicate that the small grain nursery and the varietal test at Amarillo have good stands but winter grass is giving some trouble.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Oct. 31)

Without previous light frosts, a freeze occurred on the night of Oct. 25 and very definitely stopped all sorghum growth. Since then harvesting of a few plots for grain yields, the varietal plots for total yield, and the few seed heads has been pushed as rapidly as possible.

All broomcorn has halted in growth by the freeze but it is possible that a few yields will be obtained for the sake of record. Practically, the brush is not worth harvesting.

The minimum temperature for the last half of October was 24° on the 27th and 26° on the 26th. The maximum was 91° on the 19th. There was a rainfall of 0.11 inch in three showers. The total for October is 1.68 inches.

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Nov. 2)

Seeding of winter wheat, barley, oats, and rye in plots and in nursery rows was completed on October 19. The moist, mellow surface soil at the time of seeding resulted in prompt germination. Seed sown prior to October 12 emerged to good stands in about 5 days. Cool weather beginning on October 19 delayed the emergence of seed sown after the twelfth.

Four dates of the rate-and-date-of-seeding experiment have been sown. The last seeding was made on October 31. The previous three seedings each emerged about 5 days after seeding.

Field appearnaces indicate that over 50 percent of the wheat fields in this area were seeded early in Septmber and are now being pastured rather heavily. A small percentage of volunteer winter wheat fields will be allowed to stand. Such fields are providing fairly good fall pasture but will require very favorable rainfall to produce a grain crop.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr.)(Nov. 2)

Winter wheat has continued to make good growth and is now protected by about 2 inches of snow.

Some of the flax plants in the field that withstood temperatures as low as 18° apparently were killed by the low temperature of 6° on Oct. 21.

Seed of flax crosses made in the field this fall was sown in the greenhouse Oct. 17. The common flax emerged promptly with almost perfect germination but some of the other species of Linum which germinate more slowly have not yet emerged.

Moderate temperatures prevailed during the last half of October. The maximum temperature was 79° on the 18th and the minimum 6° on the 21st and 25th. The precipitation during this period amounted to only 0.17 inch. Five hundredths of this was in the form of snow Oct. 31. An additional 0.11 inch in the form of snowfall occurred Nov. 1 and a steady fall of snow still continues today. The total precipitation for the first 10 months of 1936 was only 5.58 inches, which is about 9.75 inches less than the 62-year average.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Oct. 31)

A light snow on the 19th and 20th supplied 0.30 inch of moisture, which, followed by warm weather the past few days, has caused the winter wheat and rye to start germinating. The total precipitation for the month of October was 0.39 inch. The precipitation for 1936 to date is 5.44 inches and that for the past year beginning November 1, is 6.66 inches.

With a continuation of the present warm weather the fall-sown grain might emerge within a week, but if the predicted cold weather continues long, probably no grain will emerge this fall.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat Improvement, O. A. Vogel) (Nov. 5)

Very little wheat sown in late September and October has emerged because of a lack of sufficient rainfall. The seedings following the early September rains in all but the Big Bend areas have emerged, however, and have about five tillers at the present time. Very little winter wheat was seeded this fall in the Big Bend because of lack of sufficient rainfall for germination.

All nursery and varietal tests have been seeded for some time. The Walla Walla, Pomeroy, and Lind nurseries were seeded in dry soil. At Pullman, emergence was irregular by October 3 because of insufficient surface moisture. However, a rainfall of approximately one-third inch in October was just sufficient for germination of the remaining seed by October 25.

A sudden drop in temperature occurred during November 1 and 2. The minimum temperatures near Pullman were around 0° in the valleys. All top growth of winter barleys and of the less hardy winter wheats was killed.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Nov. 2)

Although the normal precipitation for October is approximately 1.3 inches, there was only 0.10 inch of rainfall in October this year. Consequently, only a small part of the usual fall seeding has been done, and many farmers have decided to wait until spring. The rainfall early in September was sufficient to germinate most of the weed seeds, but the surface soil is now almost entirely dry. Seeding on the Station will be completed this week.

The maximum temperature in October was 79° and the minimum, 19°. There was very little wind and most of the days were warm, so the weather has been pleasant for everyone but the farmers and the deer hunters.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 19

November 25, 1936

Personnel (Nov. 11-25) and Field Station (Nov. 1-15)

PERSONNEL ITEMS

Dr. E. G. Bayfield came to Washington about the middle of November to consult with members of the Division regarding the equipment of the Federal soft wheat laboratory.

Dr. J. R. Holbert was in Washington for a week about the middle of November to confer with members of the Division with reference to corn research.

RECENT PUBLICATIONS

A Race of Crown Rust to Which the Victoria Oat Variety is Susceptible. (Phytopath. Note) H. C. Murphy and M. N. Levine. Phytopathology 26(11): 1087-1089. November 1936. (Cooperation between the Division of Cereal Crops and Diseases and the Iowa and Minnesota Agricultural Experiment Stations.)

NOTICE OF MEETING

The American Association for the Advancement of Science and affiliated societies will meet at Atlantic City, N. J., from December 28, 1936, to January 2, 1937.

In order that we may check the correctness of our record of U. S. D. A. tag numbers, please show tag number as well as motor number on your next "Monthly Report on Passenger-Carrying Automobile or Truck."

H. S. S.

Among the visitors in the Division during the week of the meetings of the American Society of Agronomy are the following:

Dr. J. B. Cotner, State College of Agriculture and Engineering, University of North Carolina, Raleigh, N. C.

Mr. C. B. Cross, Oklahoma A. & M. College, Stillwater, Okla.

Dr. G. H. Cutler, Agricultural Experiment Station, Purdue University, La Fayette, Ind.

Prof. R. A. Derick, Dominion Department of Agriculture, Central Experimental Farm, Ottawa, Canada.

Dr. W. B. Gernert, Oklahoma A. & M. College, Stillwater, Okla.

Mr. A. H. Gilbert, Soil Conservation Bureau, Paducah, Ky.

Dr. C. H. Goulden, Agricultural College, Winnipeg, Manitoba.

Dr. J. B. Harrington, University of Saskatchewan, Saskatoon.

Dr. F. D. Keim, College of Agriculture, University of Nebraska, Lincoln, Nebr.

Dr. C. A. Lamb, Agricultural Experiment Station, Wooster, Ohio

Dr. W. A. Leukel, Agricultural Experiment Station, Gainesville, Fla.

Dr. R. D. Lewis, College of Agriculture, Ohio State University, Columbus, Ohio.

Dr. G. K. Middleton, Agricultural Experiment Station, Raleigh, N.C.

Mr. G. H. Stringfield, Agricultural Experiment Station, Wooster, Ohio.

Mr. A. D. Stuart, Extension Seed Specialist, State College Station, Raleigh, N. C.

Prof. R. Summerby, Macdonald College (McGill University), Macdonald College, Quebec.

Mr. M. D. Weldon, College of Agriculture, Lincoln, Nebr.

Mr. W. W. Worzella, Agricultural Experiment Station, La Fayette, Ind.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF DIRECTOR OF PERSONNEL
WASHINGTON, D. C.

December 2, 1936

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

The following is a copy of the Executive Order issued by the President on November 27, 1936, excusing Federal Employees from duty on December 24, and 26, 1936 and January 2, 1937:

"By virtue of and pursuant to the authority vested in me as President of the United States, it is hereby ordered as follows:

1. The several executive departments, independent establishments and other governmental agencies in the District of Columbia, including the Government Printing Office and the Navy Yard and Naval stations, shall be closed at 1 o'clock P. M. on Thursday, December 24, 1936, the day preceding Christmas Day, and the entire day on Saturday January 2, 1937, the day following New Year's Day; and all employees in the Federal service in the District of Columbia, and in the field service of the executive departments, independent establishments and other agencies of the Government, except those who may for special public reasons be excluded from the provisions of this Order by the heads of their respective departments, establishments or agencies, or those whose absence from duty would be inconsistent with the provisions of existing law, shall be excused from duty at 1 o'clock P. M. on Thursday, December 24, 1936, and the entire day on Saturday, January 2, 1937.

2. All employees in the field service of the executive departments, independent establishments and other agencies of the Government, except those who may for special public reasons be excluded from the provisions of this order by the heads of their respective departments, establishments, or agencies, or those whose absence from duty would be inconsistent with the provisions of existing law, shall be excused from duty the entire day on Saturday, December 26, 1936, which day has been declared a legal holiday in the District of Columbia by Public Resolution No. 114, 74th Congress.

3. For the purposes of this Order, in establishments or agencies in which the employees work in shifts, such employees shall, subject to the foregoing provisions, be excused from duty after four hours of work on Thursday, December 24, 1936, and from all duty on Saturday, January 2, 1937, and such employees who are affected by paragraph 2 of this Order shall, subject to the provisions of that paragraph, be excused from all duty on Saturday, December 26, 1936.

FRANKLIN D. ROOSEVELT

THE WHITE HOUSE,

November 27, 1936."

Employees absent on annual leave for the entire day on December 24, 1936, shall be charged with 4 hours leave. Employees absent on annual leave during a period which includes December 26, 1936 and January 2, 1937, shall not be charged with any leave on those days.

Employees of the Department absent on sick leave or leave without pay on December 24, and 26, 1936; and on January 2, 1937 shall be charged with a full day sick leave or leave without pay for each day absent.

The Department of Agriculture will be open and employees will work all day on New Year's Eve, December 31, 1936.

W. W. STOCKBERGER
Director of Personnel.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

OKLAHOMA

SOUTHERN GR AT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Nov. 16)

About 11,000 nursery rows of winter wheat, barley, oats, and rye have emerged to good stands. A November 1 seeding of a rate-and-date-of-seeding experiment got off to a good start by emerging on Friday, November 13.

The weather has been mildly cool and there has not been an appreciable rain since October 7. Winter wheat as a consequence has made slow growth. Wheat seeded after October 1 will furnish very little, if any, fall pasture. The 4- and 5-peck rates of seeding made on September 15 on cropped land showed uniform burning on November 16. Small burned areas are showing on the lighter seeding made on cropped land on that date.

The maximum temperature for the first half of November was 78° on November 1. The minimum was 18° on November 2. There were freezing temperatures on eight nights during the first half of November. The mean temperature was 46°. No precipitation was recorded.

FOOD LIBRARY DEC 21 1936

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 28 No. 20

December 10, 1936

Personnel (Nov. 26-Dec. 10) and Field Station (Nov. 16-30)

RECENT PUBLICATIONS

Barley Production in Colorado, 1928-1935. D. W. Robertson, Dwight Koonce, J. J. Curtis, and J. F. Brandon. Colo. Agr. Expt. Sta. Bull. 431, 28 pp. and appendix, 6 figs. August 1936. (Experiments at the U. S. Dry Land Field Station, Akron, in cooperation with the Division of Cereal Crops and Diseases.)

Genetic Effects of Ultra-Violet Radiation in Maize. I-III. L. J. Stadler and G. F. Sprague. Natl. Acad. Sci. Proc. 22(10): 572-578, 579-583, 584-591. October 1936. I. Unfiltered radiation. II. Filtered radiations. III. Effects of nearly monochromatic lambda 2537, and comparison of effects of x-ray and ultra-violet treatment. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Missouri Agricultural Experiment Station.)

The Status of Barley Improvement from a Technical and Scientific Standpoint. James G. Dickson. Amer. Brewer 69(11): 75-82. November 1936. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

NOTICE

Please submit reimbursement vouchers for expenses up to and including Dec. 31, 1936. Dotnot include expenses for the calendar years 1936 and 1937 in the same account. This procedure will facilitate the preparation of reports to the Income Tax Bureau.

H.S.S.

AMERICAN SOCIETY OF AGRONOMY

Officers 1936-37

President: Mr. F. D. Richey, Chief, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D.C.

Vice President: Mr. E. Truog, College of Agriculture, University of Wisconsin, Madison, Wis.

Chairman, Crops Section: Dr. O. S. Aamodt, College of Agriculture, University of Wisconsin, Madison, Wis.

Dr. I. P. Trotter, Texas A. & M. College, College Station, Texas.

Dr. L. E. Kirk, Canadian Department of Agriculture, Ottawa, Canada.

President, Soil Science Society of America: Dr. Richard Bradfield, Ohio State University, Columbus, Ohio

Secretary-Treasurer: Dr. P. E. Brown, Iowa State College, Ames, Iowa

Editor: Mr. J. D. Luckett, New York Agricultural Experiment Station, Geneva, N. Y.

The following members were elected as Fellows of the American Society of Agronomy at the m etings held in Washington, D. C., November 1936:

Dr. W. L. Burlison, College of Agriculture, University of Illinois, Urbana, Ill.

Dr. L. J. Stadler, College of Agriculture, University of Missouri, Columbia, Mo.

Dr. S. A. Waksman, State College of Agriculture and Mechanic Arts, Rutgers University, New Brunswick, N. J.

The following papers prepared by members of the staff of the Division of Cereal Crops and Diseases were read at the meetings of the American Society of Agronomy held at Washington, D. C., November 1936:

Indications of Superiority of the Markton Oat as a Parent, by F. A. Coffman and Harland Stevens.

The Time Factor in Pollen Tube Growth and Fertilization in Barley, by Merritt N. Pope.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Rosslyn, Va., are in cooperation with State agricultural experiment stations or other agencies)

TEXAS

SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Dec. 1)

Weather conditions in November were generally favorable for the growth of small grains and for the completion of fall work such as plowing, cotton picking, etc. The first killing frost of the season occurred on November 4, some 8 days earlier than the average. The rainfall for the month was only 0.89 inch compared with a normal of 2.11 inches. The maximum temperature was 84° and the minimum, 25°.

The seeding of all fall-sown small grains was completed early in the month. This included smut nurseries and some space planting of hybrid material, which was delayed in October by rains. All small grains have emerged and have made healthy but not too succulent growth at this time.

Although temperatures this month have been above normal, there is no rust to be found on either oats or wheat. Temperatures in October were below normal, which may account for the lack of infection.

The studies on strength of straw in connection with lodging have been completed.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Dec. 1)

The November 15 rate-and-date-of-seeding experiment emerged to good stands on November 29. All dates have a vigorous green appearance with the exception of the September 15 seedings on cropped land. These latter have yellowed progressively from the heavier to the lighter seedings. Fully 50 percent of the fields of winter wheat between Woodward and Oklahoma City show yellowed spots as a result of dry weather, early seeding, or poor seedbed preparation. Most fields have been heavily grazed, in fact, only a few fields were noticed that had not been grazed so close as to endanger soil blowing should dry weather continue into the spring, when high winds may be expected. Fall growth of winter wheat has been slow and wheat seeded after October 1 is furnishing very little ground cover to prevent soil blowing.

Mr. J. B. Sieglinger left Woodward for Chicago on November 30 to assist in judging grain sorghums at the International Grain Show and to discuss grain sorghums at a meeting of the International Crop Improvement Association.

The first appreciable moisture since October 7 started falling in the evening of November 30. It has been misting, sprinkling, or snowing continuously for a day and a night since then. Only 0.02 inch of precipitation was recorded in November. The maximum temperature was 78° on November 1 and the minimum, 18° on November 2. The mean was 45°. Freezing temperatures occurred on 16 nights in November.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Nov. 30)

The fall of 1936 has been a very mild one in Kansas with much sunshine and temperatures moderate although slightly below normal. The severe drought of the summer months was broken by heavy rains in September, the total precipitation for that month being considerably above normal. Good rains also fell in October, although the average for the State for that month was only 1.8 inches, or 0.17 below normal. At Manhattan, the October rainfall was 2.29 inches, which is 0.15 inch above normal. November has been exceedingly dry, however, with only traces of moisture to date.

Kansas farmers have sown the largest acreage of winter wheat on record, the total being in excess of 14,300,000 acres. Most of this was sown by the end of October and had emerged in satisfactory condition except in some parts of the western third of the State where fall rains were very scanty. The prospects for a large amount of wheat pasture were excellent on November 1, but owing to absence of rain and low temperatures wheat in many localities has made little growth during the month.

The winter wheat rust nursery was sown under most favorable soil conditions during the period from October 12 to 20. Excellent stands were obtained, but leaf growth has been very slow and the plants do not seem so vigorous as usual. A total of 2,783 rows, most of which are occupied by hybrid selections, were sown in the rust nursery.

Rust on wheat has been practically absent in Kansas this fall. Volunteer wheat in several locations and many commercial fields in the vicinity of Manhattan have been examined by the writer. Most fields seem to be rust free and only a few have been found in which an occasional pustule of leaf rust was present. A little stem rust was found in a field of volunteer wheat on October 23, but by November 10 rust was difficult to find in that location.

Very little corn was produced in this part of Kansas in 1936, due to the extreme heat and drought of the summer months. Considerable acreages of sorghums survived, however, and after the rains began in September, the crop made rapid growth. The first killing frost did not occur until October 21, nearly two weeks later than usual. By that time sorghums had made a great deal of leaf growth and gave excellent crops for silage and bundle feed, although they matured very little grain.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Nov. 30)

The drought of the summer, which was partly broken late in September, continues, as there has been almost no precipitation since early in October. Although there were one or two cold spells, temperatures have been rather high, thus keeping the wheat in a growing condition, but due to the lack of moisture there has been little growth. On several days wind velocities were high and there has been much dust in the air. Reports from over the State indicate that for the most part the condition of winter wheat is poor, and with the soil so dry blowing will be a constant threat.

The winter wheat varieties in plots at the Agronomy Farm have made fairly good growth and seem to be standing the drought better than the material in the nursery. Possibly this may be explained by the fact that the ground was plowed earlier than was the nursery ground, and possibly a little more moisture was stored.

In the nursery the hard red winter wheats look fair, although they have made little growth. The more tender varieties in the soft red winter wheat hardiness nursery look bad. Such varieties as Redhart, Leap, and Purplestraw appear to be 30 to 50 percent killed already. The barley winter-hardiness nursery looks decidedly "sick", with very little green showing. This condition was brought about by sudden drops in temperature which caused some injury and then with so little moisture available recovery was very slow. In the wheat classification nursery most spring and tender winter varieties are dead.

The artificial freezing work offers somewhat of a contrast to the conditions reported above. Here it has been rather difficult to get the desired amount of killing. At present a temperature of -22° C. is being used for a 24-hour period, a temperature that had been planned for the last of December. Of course the flats have been watered so as to keep the plants growing, and with no cloudy weather a high degree of hardiness seems to have been built up.

NORTH DAKOTA

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal Agronomy and Flax Breeding, J. C. Brinsmade, Jr. (Dec. 1)

The snowfall during the first week of November amounted to 0.55 inch of precipitation. Temperatures were generally low during this period. From then until Nov. 25 there was practically no precipitation, and moderate temperatures, somewhat above normal, have prevailed. Nearly all of the snow had melted by the middle of the month. A light snowfall on Nov. 25 was practically all melted during the next few days. The total precipitation in November was 0.61 inch.

Severe dust storms occurred on several days during the last half of November. Wind velocities of 35 miles per hour for short periods were noted on two occasions.

The maximum temperature was 64° on the 19th and the minimum, -3° on the 5th.

The winter wheat has a healthy, green color and appears to be in good condition. There has been practically no snow covering over it except for brief periods during November.

The flax in the greenhouse is making good growth. The plants are now about 4 inches tall.

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Dec. 1)

A few light snows, totaling 0.49 inch of moisture, occurred in November, mostly during the first part of the month. Mild weather and bare ground prevailed during the latter half of the month. The temperature ranged from 65° above to 5° below zero, the mean for the month being 29.6°, or slightly above normal.

During the warmer days the winter wheat in the nursery made slight growth, and the end of the month finds it in various stages of iarovization but not yet emerged. In the field plots a few plants emerged in September but most of the kernels are either dormant or barely sprouted.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Dec. 1)

Dry warm weather prevailed until the 15th of October when rains began that totaled over 3 inches by November 1. Only a limited amount of grain emerged before the rainy period, making a rather spotted effect in most dry-farm fields. The snow that fell in October has melted and for 27 days clear, warm days have prevailed. Much of the winter wheat is just emerging but the stands are not yet satisfactory. The ground is still bare although light snows fell in a few places on November 30.

Yields of corn, both in grain and silage production, have been calculated for most of the tests. This year has been one of the best in history for the growth and development of corn in Utah. Many varieties yielded approximately 100 bushels per acre of air dry corn, with silage yields from 15 to 22 tons per acre. Ohio Double-Cross has surpassed any other variety thus far tested both in silage and grain production.

The mean temperatures for November were somewhat lower than normal, as was the precipitation of 0.59 inch. A minimum temperature of 15° was recorded on November 29.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Dec. 1)

The rainfall in October and November totaled 0.11 inch as compared with a "normal" of 2.35 inches. Comparable deficiencies are common to all parts of the State from Fresno north.

Aside from preventing preparation of the nursery seedbeds, the drought has had little effect on seeding of grain, for it is not unusual here to "plant dry". Field plots and increase fields on the station were drilled, clods notwithstanding, during late November. Livestock feed is very scarce, for normally there is an abundance of new grass at this season.

All indications point to a considerable expansion of the barley acreage in California. An unusually large movement of malting barley to the midwest, an ever expanding local feed demand accentuated by the present feed shortage, and an export business totaling 150,000 tons assure a sell-out before next June of one of the largest crops (over 800,000 tons) since the war, together with a 1935 carry-over of 200,000 tons. The fact that the California maltsters and brewers have during the past year generally forsaken earlier convictions against using 100 percent Coast type barley malts, which are inherently low in diastatic power and require a longer inversion period, is another important factor. Behind this change of heart lies a familiar story - an urge to learn to use a "different" type because of price and supply advantages.